

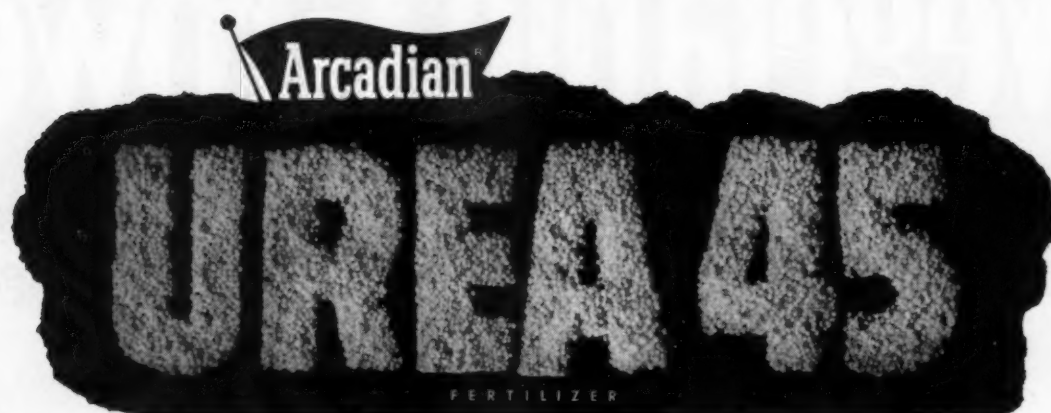
# American Vegetable Grower

MARCH • 1955

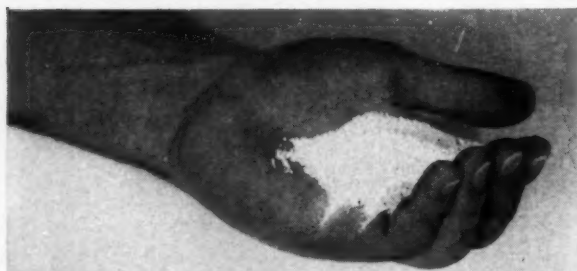


YOUR PLANTS DESERVE A GOOD START

# Better Vegetables with Less Work



**Any way you apply it, ARCADIAN UREA 45,** the 45% Urea Nitrogen Fertilizer saves work and cuts application costs while it boosts yields profitably. It speeds the job of applying nitrogen needed for fast-growing, high-quality vegetables and potatoes. Place your order now for this work-saving, adaptable new nitrogen. Write us and we'll send you free literature and tell you who sells ARCADIAN UREA 45 in your vicinity.



**Top-dress** cover crops, vegetable stubble and sod before you plow—with fast-spreading, smooth-flowing UREA 45. Every easy-lifting 80-pound bag contains 36 pounds of nitrogen—two or three times as much as ordinary nitrogen fertilizer. You have fewer bags to lift to get all the nitrogen needed to rot crop residues into nitrogen-rich humus, and to feed your hungry crops throughout the season.



**Side-dress with UREA 45** when your crops need an extra nitrogen boost. ARCADIAN UREA 45 feeds crops quickly, even in cool soil, yet lasts throughout the growing period. With short-season vegetables, any UREA 45 left over stays in the soil to rot crop residues fast and to feed the next crop planted. UREA 45 spreads readily in any fertilizer equipment.



**Apply UREA 45 in irrigation water.** Let water do the work of spreading and do two jobs in one. Irrigation water carries UREA 45 everywhere it penetrates, to feed all crop roots equally well. There is no waste—UREA 45 stays locked to the soil until crops need it. UREA 45 feeds all the crop roots in furrow, bed and underground pipe irrigation, as well as in flood and sprinkler systems.



## PRODUCTS FOR PROFITABLE FARMING

Urea 45 Fertilizer—45% Nitrogen Pellets  
Nitrogen Solutions—  
Pressure and Non-Pressure types  
American Nitrate of Soda—Improved Granular  
A-N-L® Nitrogen Fertilizer—Pelleted  
Sulphate of Ammonia—Dry Crystalline

**NITROGEN DIVISION** Allied Chemical & Dye Corporation  
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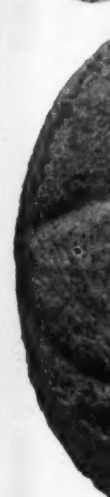


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MARCH, 192

# More F<sub>1</sub> Burpee HYBRIDS New for 1955

## for Better Quality Bigger Yields

SEED SUPPLY LIMITED—Order Your Test Quota Right Away—Make Comparison Plantings and Be Ready for Big Profit Acres Next Season.

### Burpee Hybrid Cantaloupe



From Burpee's Fordhook Farms comes this heavy cropper, true F<sub>1</sub> Hybrid, best of all crosses made by our experts. Heavily netted, distinctly ribbed. Thick, firm, juicy deep orange flesh, extra delicious. More vigorous vines, earlier bearing, disease-resistant. Popular shape, about 5 x 6 in., 3 to 3½ lbs. Small supply, order limited. ¼ oz. \$2.25.



**VEGETABLE GROWERS** know the big advantages of Burpee Hybrids for heavier yields and higher quality. They get top market prices. You'll praise these new kinds, as well as Burpee's Hybrid Tomatoes, Hybrid Cucumber, Hybrid Eggplant. Mail coupon today!

## Burpee Hybrid Vegetables

### Make More Money For You

W. ATLEE BURPEE CO., PHILA. 32, PA.—CLINTON, IOWA—RIVERSIDE, CALIF.



### Burpee Hybrid Zucchini

This new F<sub>1</sub> Hybrid Zucchini is destined to be a market growers favorite. It resembles Burpee's Fordhook which has built up such big consumer demand. Bears 2 weeks earlier, has heavy yield all summer. Bush plants. Handsome, shiny dark green; when picked about 8 in. long, cooks exceedingly tender and delicious, practically no evidence of seeds. 1 oz. \$1.00.

### CATALOG OF WHOLESALE PRICES

Burpee Special Strains for Market Growers, and complete list of all leading vegetables and flowers.

**FREE**

Use coupon below to get this restricted book for Market Growers and florists.



To: **W. Atlee Burpee Co.** Philadelphia 32, Pa.  
903 Burpee Building Clinton, Iowa  
Riverside, Calif.

Please send me your 1955 Blue List Catalog. Send postpaid seeds of new vegetables marked below:

☐ ¼ oz. Burpee Hybrid Cantaloupe \$2.25 Enclosed  
☐ 1 oz. Burpee Hybrid Zucchini \$1.00 is \$.....

Name.....

R.D. or St.....

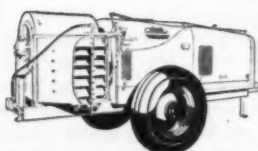
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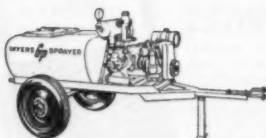


# "My Myers Concentrate sprayer beats dilute boom sprayers on every score,"

says LOUIS GARDNER,  
WAYLAND, NEW YORK



**Myers** CONCENTRATE  
FIELD CROP  
SPRAYER



**Myers** GENERAL-  
PURPOSE  
SPRAYER

Louis Gardner considers the Myers Concentrate Sprayer "tops" for its economy, better coverage and the results it produces.

The Concentrate Sprayer requires one-fourth the water dilute equipment needs, so just one stop an hour instead of several is required for filling the spray tank. He not only conserves precious water, but also cuts spraying time in half allowing more tractor time and man hours for other important jobs.

He reports the best coverage he's ever had, too. The high-velocity, fine-droplet spray gets to every leaf even when potato vines and foliage are heavy.

Thanks to this kind of season-long spray protection, Louis Gardner's crops yield a high percentage of U. S. No. 1 potatoes.

For convincing proof of these and other money-making advantages of the Concentrate Sprayer, call your Myers dealer and arrange a demonstration in your own field. There is no obligation.

## Myers

**POWER SPRAYERS**  
WATER SYSTEMS AND WATER SOFTENERS

THE F. E. MYERS & BRO. CO.,  
DEPT. AV-3, ASHLAND, OHIO

## American VEGETABLE GROWER

REG. U. S. PAT. OFF.  
(Commercial Vegetable Grower)

Vol. 3 March 1955 No. 3

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### AMERICAN VEGETABLE GROWER

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AMERICAN VEGETABLE GROWER



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New antibiotic crop saver  
helps insure full, healthy  
stand, top yield

# Agri-mycin Dip now **STOPS**

# **BLACKLEG** and **SOFT ROT**

This spring for the first time, potato growers have a powerful and effective control against both Blackleg and Soft Rot. The balanced combination of antibiotics in Agri-mycin\* 100 gives complete control with just a few minutes dip of the seed pieces before planting. One jar of Agri-mycin makes 100 gallons of dip solution.

In large-scale tests conducted at state university experiment stations over the last three

years, the effectiveness of Agri-mycin\* 100 in controlling Blackleg and Soft Rot was proved conclusively. Even when seed pieces were inoculated with the causative organism before dipping, a perfect stand of normal plants developed—not one showed any signs of Blackleg or Soft Rot.

Agri-mycin\* 100 is doubly effective because it contains the wide-range antibiotic, Terramycin®. Terramycin prevents development of streptomycin-resistant strains, and at the same time actually increases the effectiveness of the streptomycin.

Your regular supplier of spray materials has Agri-mycin\* 100 now. Use it this spring for complete control of Blackleg and Soft Rot and to help insure a top yield of high quality potatoes this crop year.



One bottle of Agri-mycin\* 100  
makes 100 gallons of solution

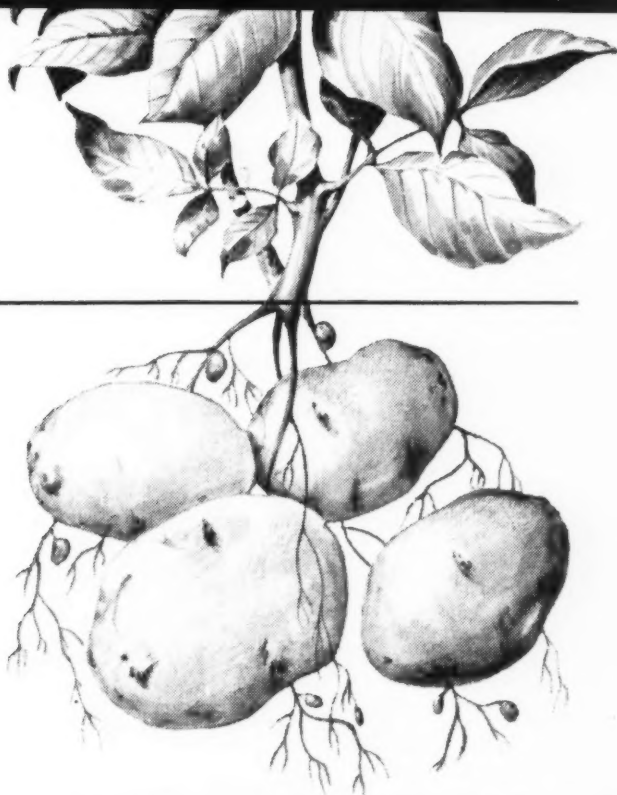
# **Agri-mycin\* 100**

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A product of



Chas. Pfizer & Co., Inc., Brooklyn 6, New York  
World's largest producer of antibiotics  
Terramycin® brand of Oxytetracycline





Be Safe—Be Sure  
with  
**Niagara**  
**Dusts and**  
**Dusters**



## An Unfailing Combination to Assure Bumper Crops

It is noteworthy that growers who regularly protect their crops with Niagara dusts and dusters produce bumper harvests of highly profitable produce.

This fact has led more and more market growers to call in the Niagara field man at regular intervals. By following his professional advice, they, too, have enjoyed highly successful harvests. Now the word has spread. Niagara quality dusts and methods are the best for safe, sure protection against insects and disease.

Working with Niagara can mean "good business" for you. There's a helpful Niagara field man in your neighborhood, ready to serve. Call him in today.

### A FEW OF THE MANY FINE NIAGARA PRODUCTS FOR MARKET GROWERS

|                    |                  |                       |
|--------------------|------------------|-----------------------|
| *C-O-C-S Fungicide | *NIATOX (DDT)    | TEPP                  |
| *Kolo Sulphur      | CALCIUM ARSENATE | ROTENONE              |
| *Z-C Fungicide     | LINDANE          | *PHOS KIL (Parathion) |

The above materials are available in various dust and spray combinations  
\*T.M. Reg. U.S. Pat. Off.

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Niagara Chemical Division  
FOOD MACHINERY AND CHEMICAL CORPORATION

Middleport, N. Y., Richmond, Calif., Jacksonville, Fla., Tampa, Fla., Pompano, Fla., Wyoming, Ill., New Orleans, La., Ayer, Mass., Harlingen, Tex., Pecos, Tex., Yakima, Wash. Subsidiary: Pine Bluff Chemical Co., Pine Bluff, Ark. Canadian Associate: NIAGARA BRAND SPRAY CO., LTD., Burlington, Ontario.



## LETTERS TO THE EDITOR

### Plastic Greenhouse

Dear Editor:

In regard to the story on a plastic greenhouse in the December, 1954, issue, the question of snow loads and high winds bothers me somewhat. I wonder how the plastic house will behave under these conditions?

Hortonville, Wis.

Reinhold Harp

You do not need to worry much about high winds and snow loads as far as the plastic goes. It will take very high winds up until almost May if the house is erected in late September or early October. If the framework is strong enough, the plastic will take almost any snow load. On the University of Kentucky house, the slope is enough so that snows slide off after getting over several inches deep. However, a freezing snow will not slide off. In this case, temporary posts can be erected on the purlines almost every 10 to 15 feet. According to E. M. Emmert of the University of Kentucky, a snow that put down two glass greenhouses did not bother eight plastic houses in the vicinity.—Ed.

### Vegetable Areas of America

Dear Editor:

I certainly enjoyed your second article in the "Vegetable Areas of America" series. As a vegetable grower at the opposite end of the U. S. A. from the state of Florida, California, I can hardly wait until you run one on my own home state. The rivalry between Florida and California is well known, so you can see that I am especially interested now. However, in spite of the rivalry, I must say I was impressed with your account of Florida as a vegetable area of the United States.

California

R. A. White

### New Developments

Dear Editor:

I find your magazine most helpful. All the new varieties that are being developed, the new chemicals, and new developments in other fields are so interesting. I have learned a lot of useful facts from your "Letters to the Editor" column as well. I'm looking forward to the March issue.

Rye, N.Y.

Phyllis Daly

### Another Watermelon

Dear Editor:

Can you tell me what variety of watermelon is pictured on the September cover of AMERICAN VEGETABLE GROWER?

Montrose, Iowa

Chris Christensen

USDA watermelon breeders in Charleston, S. C., where the new Charleston Gray watermelon was developed, say that the variety illustrated on our September cover is the Dixie Queen type of watermelon and probably is one of the new wilt resistant Dixie Queens.—Ed.

AMERICAN VEGETABLE GROWER

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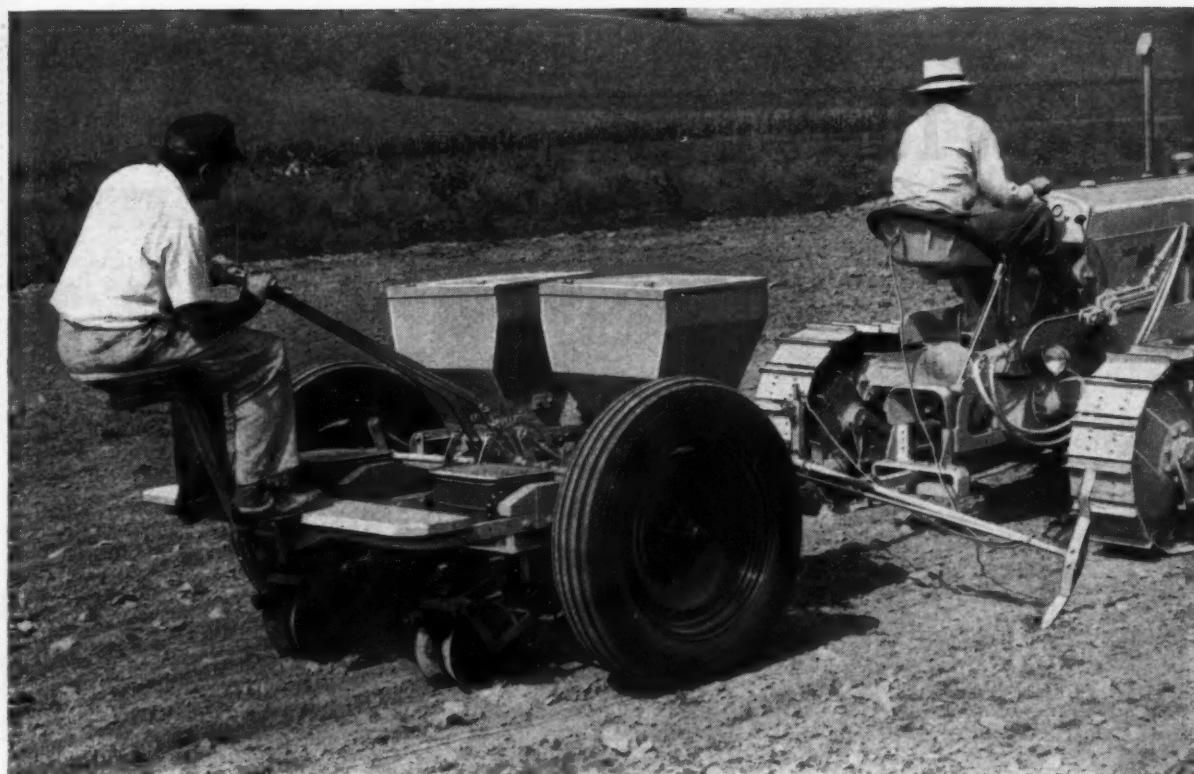
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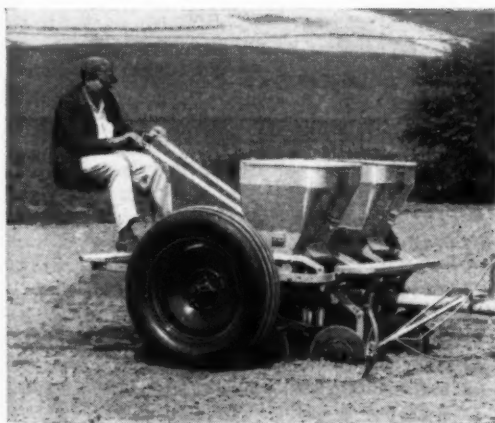
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The sure-footed Oliver "OC-6" Crawler powers the fast, accurate Iron-Age No. 292 planter with Cole seed hoppers and bandway fertilization.

## Upgrade your vegetable crop with a precision **OLIVER** *IRON AGE* **PLANTER**



The rugged Oliver Iron-Age vegetable planter carries 300 to 400 pounds of fertilizer per row, applies even or hi-lo bands. Large pneumatic tires carry weight without soil compaction...assures even depth of planting, fertilizing.

Big yields are great, but top quality is important, too. Both get their start at planting time. That's why vegetable growers are paying more attention to accurate placement of seed and fertilizer.

Only an Oliver Iron-Age has these two quality- and quantity-getting features...precision belt-feed bandway fertilizer placement, plus versatile Cole seed hoppers. And in addition, you get rugged construction, choice of hydraulic or hand lift, automatic clutch control of planting and fertilizing mechanisms.

You save labor, too, with an Oliver. In a single operation you plant and apply plant food according to the exact needs of your soil and crop. A specially designed fertilizer belt provides uniform flow, measures fertilizer amounts accurately. And bandway placement assures maximum fertilizer efficiency plus earlier, more uniform crop maturity.

Superaccurate Cole "double seed hoppers" provide extra versatility—wide range of seed spacing—no skips, no bunching. And you can alternately plant two crops in the same row. Seed plates are available for most truck and field crops.

Switch to a new Oliver Iron-Age vegetable planter and start your quality bonus, now.

The Oliver Corporation, 400 W. Madison St., Chicago 6, Ill.



**OLIVER**

"FINEST IN FARM MACHINERY"

### See your **OLIVER DEALER** for quality

**a new 18' x 84' greenhouse for only**

**\$250!**



**do it yourself with** **VISQUEEN<sup>®</sup> film**  
**the only polyethylene in 16' widths**

No need to pass up high profits on out-of-season produce just because of high greenhouse building costs! Now, using VISQUEEN polyethylene film, you can build an 18' x 84' greenhouse yourself for as little as \$250 . . . as compared to \$4,000 or \$5,000 for a glass house.

Fruits and vegetables actually grow better under VISQUEEN. And no wonder. VISQUEEN film lets in plenty of light and air, yet retains inside moisture so well that plants thrive on less-frequent watering. VISQUEEN is tough, stands up under severe temperature changes, shrugs off rain, hail, snow and sleet. Using an inexpensive

double layer of plastic, heating costs are about half that of glass houses.

There's a VISQUEEN converter near you who'll be glad to tell you all about it. Use the coupon to get his name.

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**THE VISKING CORPORATION**

World's largest producers of polyethylene sheeting and tubing  
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**In Canada: VISKING Limited, Lindsay, Ontario**

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# The Modern JOHN DEERE "40" TRACTORS Have What Market Growers Want



"40" Tractor with wide, adjustable front axle and John Deere No. 480 Cultivator doing close, clean work in narrow-planted vegetable rows.

**W**HATEVER the size of your farm—whatever your crops—you'll be 'way ahead with the power farming advantages you can get only in a John Deere Tractor:

**Economy**—*"More economical than any other tractor I've owned"* and *"Easy on the pocketbook"* are often-heard statements from owners.

**Dependability**—Ask owners about that time-proved "40" valve-in-head engine, and they'll probably tell you it is one of the finest ever put into a tractor. It is a simple engine, easy to service, known everywhere for its low operating costs.

**Adaptability**—"General-Purpose" in every sense, with more than forty matching tools to select from. Full range of wheel treads. Does belt and PTO jobs.

**Ease of Handling**—Touchomatic hydraulic system and exclusive Load-and-Depth Control are just two of the many regular features to save your time and muscle. Recent improvements make steering and clutching easier than ever. And there's a new remote hydraulic cylinder for two-way control of integral and drawn tools.

**Comfort and Convenience**—Just try the deep, coil-spring cushion seat that's regular equipment on a John Deere! All tractor controls are at your finger tips.

**Easy to Buy**—Your John Deere dealer has a credit plan for your convenience. He will make you a good deal on your old tractor.

**Service**—where you want it—when you want it.

## MORE THAN 40 MATCHED TOOLS TO CHOOSE FROM:

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| Plows of All Types                        | Cultivators          |
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| Fertilizing and Side-Dressing Attachments | Tool Carriers        |
| Disk Harrows                              | Tool Bars            |
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Plus many items of equipment made by other manufacturers which have been tested and cleared for use with John Deere "40" Tractors.

## Choose the "40" that Fits Your Needs Exactly



TRICYCLE    STANDARD    UTILITY    CRAWLER

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Town \_\_\_\_\_ State \_\_\_\_\_

feet of manure application should from five to seven of heavy rains, each new addition of course.

## Russet Mite by Malathion

to russet mite was California and later New Jersey, growing something like this: "s through my fields are turning brown, reason for it." The eds. of thousands of russet mites. showed that sulphur d through the grow- ted a mite build-up. ever, disadvantages to . It was found under ons that several sul- s were necessary to der control. This pre- g of a sulphur residue oatoes were going to as one to two parts per ur caused bluish iri- n tin cans plus a hydro- or and off-flavor. Spe- d to be installed to re- ar. is of the mite began to Jersey, Rutgers Univer- sts experimented with rides and found mala- most satisfactory mate- cleanup of the pest. Al- insecticides were found ll the mite, malathion om several standpoints: other insecticides tested ng for sulphur), mala- s given no off-flavor in canned tomatoes. on's low mammalian tox- ers no special hazards to ator.

## Malathion for Fruit

finding wide use in the f fruit because of its superi- aphicide and an acaricide. cols many other fruit pests ye spotted bud moth, pear ng moth and Oriental fruit dition, malathion is effective y scale insects on California reas where grape leaf hopper ped a resistance to DDT, is being used against this od effect. It is also useful ication necessitates extensive ntact, as in cranberries and ialized fruits. Under such

flowers and ornamentals

## Dust Them off with Malathion

Truck farmers who have been having trouble with the Mexican bean beetle now have a new, effective weapon in the form of malathion. This insecticide,

extremely effective weapon against a host of insects and mites which damage fruits, vegetables and ornamental plants—scales, aphids, mealybugs, and scores of sucking and chewing insects.

Malathion apparently comes closer to an "all-purpose" insecticide for home vegetable and flower gardens than any

this basic chemical garden insecticides. It either alone or in com fungicide.

## Control of Scale

Scale insects can be efficiently now, thanicides which require and offer less risk of than insecticides used. For example, most insect can be contr effectively with mala

Malathion, a devel can Cyanamid Com ornamental field an pound. A refinement chemicals, malathion secticidal properties low order of toxicity. It is classed by the partment of Agricult safest insecticides icity to warm-blood tually less than th

Malathion is effe range of scales attac evergreen trees and other flowers, fru house and house p as a summer spray stages, malathion many species, bot including soft bro scale, Monterey p scale, various lea dendron scale, oys scale, magnolia s scale, Florida re others, Malathio aphids (probabl ornamental pes miners and lace Malathion for in leading small as from well-d distributors.

## New Spray Aphids and

Malathion, oped by Amer controls both low toxicity plants. Depen festation and doses range h half teaspoon. All plan early and la produce That's and handy gree elaborate g acres unde glass fram side of the

MARCH, 195

# MALATHION IS MAKING NEWS!

Rarely before has a new insecticide been welcomed so enthusiastically by so many agricultural authorities and growers all over the country. From farm, garden, trade and government publications has come a stream of stories about malathion *because malathion is a unique insecticide*—the *only* insecticide on the market today which offers all the following advantages:

**Malathion** is the *only* phosphate insecticide which gives you a wide margin of safety in handling as well as superior insect control.

**Malathion** kills aphids and mites plus scores of other sucking and chewing insects on more than 40 crops.

**Malathion** residues on crops disappear rapidly.

**Malathion** is compatible with most other spray materials.

**Malathion** is available in wettable powder, emulsifiable liquid, and dust forms.

**Malathion** is the insecticide you've been looking for—to make insect control simpler, easier, more successful . . . and crops more profitable.

So write today for your free copy of **MALATHION GROWER'S GUIDE**—packed with valuable information on the uses of malathion. Consult your county agent or other local agricultural authority for suggestions on application procedures and timing of sprays.

Malathion insecticides are available from well-known manufacturers, under their own trade names.



**AMERICAN Cyanamid COMPANY**

AGRICULTURAL CHEMICALS DIVISION  
30 Rockefeller Plaza, New York 20, N. Y.

DEVELOPERS AND PRODUCERS  
OF MALATHION AND PARATHION TECHNICAL

P.S. Got a fly problem?  
Malathion kills flies, too!

## Here's the Answer to DDT-Resistant Flies — Malathion

The USDA acceptance of malathion for fly control in dairy barns provides an answer to the problem of flies which have developed resistance to DDT and other insecticides. And

developed by American Cyanamid Company, is chemically related to parathion, but is much less toxic to man and beast.

In comparison tests, five per cent malathion gave the most complete control on Mexican bean beetles. When these malathion treated beans were

tested on panels, no trace of an

# New Hampshire Farm Has a 12-Month Growing Schedule

● Holly Hill Farm uses a small greenhouse to extend their normally short growing season



Pumpkins stored in cold frames in front of small greenhouse at Holly Hill Farm. The greenhouse is used to start early-season plants and to ripen late-season tomatoes.

By CHARLES L. STRATTON

**O**WNING a greenhouse can make the big difference between seasonal and year-round produce sales, Edward Lievens, Holly Hill Farm, Hillsboro County, Hollis, N.H., has found.

This grower not only raises more than 100 acres of vegetables annually, but includes (other than 15 varieties of the more common crops) sideline crops like pumpkins and variegated Indian corn for ornamental purposes.

Although living in a state with a short growing season, Lievens has lengthened his normal season with a greenhouse, cold frames, and hotbeds. He can thus sell Holly Hill Farm produce 12 months of the year. Sales start in May from three acres of asparagus, swing over to strawberries and peas in June, beans and tomatoes in July, and continue throughout the growing season, ending the following April with the last of the winter squash and apples from 150 acres of orchards.

All plantings are aimed for the early and late markets when top-grade produce brings premium prices. That's another good reason for a handy greenhouse at Holly Hill. No elaborate greenhouse set-up here with acres under glass, but rather a small glass framework attached to the south side of the farm workshop. Heated

by a small steam boiler, it has plenty of bench space and room enough for a couple of men to work in comfort. Working right in with the greenhouse is a cold frame attached to the front. Across the road are a dozen or more hotbeds heated by electric cables.

First-of-the-season crops are timed by starting them early in both the greenhouse and the hotbeds. As he grows plants in the greenhouse for farm use only, Lievens prefers to start his hotbeds first, planting the seed in flats around the middle of February. Later, he starts the boiler and heats the greenhouse for a couple of months as he swings into production with more plants for his fields.

Lievens harvests several crops off a single piece of land in a season. Some of this is due to his early starting of plants. Cauliflower, tomatoes, and cabbage are a few of the early plants that find their way into rotation programs after early crops are harvested. All crops are rotated and fertilized. As soon as the last crop in each field is harvested, it is seeded down with winter rye.

There is an excellent sweet corn market throughout the section and Lievens raises several varieties in order to have early, medium, and late crops to thoroughly cover the season.

Tractors and low-bed trailers are used for harvesting in most of the fields. He finds they save lifting, avoid wear and tear on his trucks, and don't dig up the fields. A tractor can

move into a field and haul two trailer-loads of vegetables to the packing plant. The loaded trailers are left outside for the packing crews to work on while the tractor returns to the field with empties.

Sales are spread through a number of outlets in both the immediate vicinity and the Boston area. During the season several trucks loaded with produce leave for Boston five nights weekly. Trucks also deliver to stores in the immediate vicinity. Several stores and roadside stands feature Holly Hill Farm vegetables exclusively in season. One man is kept on the road taking orders and delivering to these outlets.

The only advertising Lievens does, other than using the Holly Hill Farm name in connection with sales of produce in stores, is a large flower garden across the road from the packing house. Customers are allowed to pick a bouquet when purchasing vegetables.

Other good customers are the people who like to pick their own vegetables. After the main crop of strawberries, beans, or tomatoes is harvested, Lievens lets these customers in to finish the picking. They do the job at a profit without outlay for containers, labor, and packing. Lievens claims he cannot afford to have his men pick the remainder of the crop when other crops require picking.

Lievens harvests about 25 tons of  
(Continued on page 37)





Soluble fertilizer or starter solution used at the same time transplants are set in the field results in earlier maturity of plants.

# Get Your Plants OFF TO A GOOD START

**Concentrated "starter" fertilizer solutions will make your vegetable plants sturdy, eliminate transplanting shock, give you increased yields**

By **ROBERT L. CAROLUS**  
*Michigan State College*

**M**ANY chemical salts containing plant nutrients are today being formulated into fertilizers for use as starter solutions and other purposes. A starter solution is a mixture of water soluble chemicals that contain high concentrations of plant nutrients. To be of maximum usefulness and efficiency the percentage of nitrogen (N), phosphate ( $P_2O_5$ ), and potash ( $K_2O$ ) should total at least 50 per cent.

Some special formulations of "plant food" mixtures contain small quantities of trace elements such as magnesium, boron, manganese or copper, growth regulating substances, vitamins, antibiotic materials, and other ingredients which purportedly stimulate plant growth. The claims for many of these products will not bear close scrutiny. If a trace element is deficient in the soil, these products seldom contain

a sufficient quantity of the nutrient to correct the trouble, unless they are used in large quantities as fertilizers.

The same quantity of nutrients contained in tablet, bottled, or small packaged products can frequently be duplicated at much less cost in a regular concentrated "starter" fertilizer purchased in 3- to 50-pound bags. Some of the soluble phosphate is readily precipitated when concentrated fertilizers are dissolved in very hard water and as a result a white, milky, calcium phosphate compound is formed. To assure a clear solution, rain water or water low in calcium should be used.

Starter solution fertilizers are superior to regular fertilizers for certain purposes because they are completely soluble in soft water and contain high concentrations of plant nutrients. Regular fertilizers for field application contain forms of nitrogen and phosphate that may be only slightly soluble in water.

In addition, a large proportion of a fertilizer containing less than 40 per cent of plant nutrients consists of materials that are not required for plant growth. Such fertilizers, therefore, can be formulated from cheaper materials and are not injurious when applied at normal field application rates. However, highly concentrated fertilizers, containing from 60 to 80 per cent of plant nutrients, provide for a higher localized application of nutrients than could be safely applied with a regular fertilizer.

**For Greenhouse and Field Crops**—Greenhouse operators are finding in concentrated fertilizers a means by which large quantities of nutrients can be applied to their crops without causing a damaging increase in the soluble salt content of their soils. Small suction devices attached between the water tap and the hose enable growers to apply soluble fertilizers to their crop at the time of watering.

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Using such a device, adequate nutrients may be effectively applied precisely when they are required to promote the most satisfactory type of plant growth. Similarly in the field, where irrigation equipment is available, soluble fertilizer may be added to the irrigation water for supplying added nutrients when required to improve plant growth.

**For Plant Growing**—In order to produce thrifty, sturdy plants for field planting, it is advisable to avoid over-fertilization of soils in which they are grown. Frequently this practice is over-emphasized and plants are quite low in nutrients at time of field setting. Watering tomato, pepper, melon and cucumber, cabbage and cauliflower plants with nutrient solutions as needed during their latter stages of development, and particularly 48 to 72 hours before removing to the field, has paid dividends in rapid recovery from transplanting shock and in earlier maturity.

**For Transplants**—Whenever water is used in transplanting, the possibility of using soluble fertilizers should be considered. Using 4 pounds of a concentrated fertilizer per 50 gallons of water, or 2½ tablespoons per gallon, and applying the solution at the rate of one-half pint or a teacupful per plant is equivalent to about 14 pounds of fertilizer per acre of tomatoes spaced 3¼x5 feet.

This small quantity of fertilizer is very effective due to its concentrated application in the immediate vicinity of the plant. If a 10-52-17 analysis is used, in immediate effect it is equal to a broadcast fertilizer application of approximately 35 pounds of N, 160 pounds of P<sub>2</sub>O<sub>5</sub>, and 60 pounds of K<sub>2</sub>O per acre.

The use of starter solutions in transplanting shipped-in tomato plants has resulted in better stands, earlier recovery, rapid early development and earlier maturity. Increases in yield from the use of starter solutions have ranged from 1 to 5 tons per acre, depending on the fertility of the soil and the vigor of the plants.

If the plants have been watered several days before transplanting with a fertilizer solution containing an ounce of fertilizer per gallon, their need for and response to the fertilizer in the starter solution will be somewhat reduced.

In situations where it is inconvenient to use starter solutions at transplanting, or with potted or banded plants, it is highly advisable to water with fertilizer solutions several days before removing to the field. However, if convenient, it is desirable to use starter solutions

both before and during transplanting operations.

**Use in Sprays**—Starter solution fertilizer and urea may be applied as nutrient sprays or with fungicides or insecticides to the foliage of vegetables. The higher nitrogen-containing materials are generally the most useful. Solutions should not contain more than 4 pounds of fertilizer per 100 gallons of water, unless previous experience with a particular material has indicated that a higher concentration does not injure the foliage.

**For Sidedressing Growing Crops**—On the basis of their nutrient con-

percentages of less soluble phosphorus.

**Recommendations**—There are many hundreds of formulations of concentrated fertilizers. Growers would be well advised to make their choice primarily on the basis of the cost of their nutrient content. All of them can be used at rates of up to 1 ounce per gallon in making starter solutions to be applied at rates up to one-half pint per plant or 2 quarts at 5- to 10-day intervals to flatted plants.

High phosphate fertilizers are particularly well adapted for use in transplanting tomatoes, peppers, and

#### FORMULATIONS FOR STARTER SOLUTION FERTILIZERS

| Materials:   | Per Cent Composition |  |                           |
|--|----------------------|--|---------------------------|
|  | Nitrogen (N)         | Phosphate (P <sub>2</sub> O <sub>5</sub> ) | Potash (K <sub>2</sub> O) |
| Synthetic Urea CO (NH <sub>2</sub> ) <sub>2</sub>                      | 46                   |  |                           |
| Nitrate of Potash KNO <sub>3</sub>                                     | 13                   |  | 44                        |
| Di-Ammonium Phosphate (NH <sub>4</sub> ) <sub>2</sub> HPO <sub>4</sub> | 21                   | 54   |                           |
| Mono-Ammonium Phosphate NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub> | 12                   | 61   |                           |
| Mono-Potassium Phosphate KH <sub>2</sub> PO <sub>4</sub>               |                      | 52   | 35                        |

#### Formulations:

- A. 10-52-17 50% Di-Ammonium Phosphate  
50% Mono-Potassium Phosphate
- B. 23-27-11 25% Potassium Nitrate  
25% Urea  
50% Di-Ammonium Phosphate
- C. 19-26-19 25% Potassium Nitrate  
25% Urea  
25% Di-Ammonium Phosphate  
25% Mono-Potassium Phosphate

#### PARTIAL LIST OF COMMERCIAL SOURCES

##### Group I—High Phosphate Analysis

| Trade Name                      | Analysis | Source  |
|---------------------------------|----------|---|
| Take Hold                       | 10-52-17 | Victor Chemical Works, 155 N. Wacker Dr., Chicago 6, Ill. |
| Armour's All-Soluble Plant Food | 15-52-9  | Armour Fertilizer Works, Hurt Bldg., Atlanta, Ga.         |
| Bonoro                          | 10-50-10 | Swift and Company, Union Stock Yards, Chicago 9, Ill.     |

##### Group II—Medium Phosphate Analysis

|                      |          |   |
|----------------------|----------|---|
| Kap Co #1            | 15-30-15 | The Summers Fertilizer Co., Inc., McKeesport, Pa.                       |
| Plant Prod           | 15-30-15 | Plant Products Corp., Kennedy Ave., Blue Point, L.I., N.Y.              |
| Nu Way               | 15-30-15 | Plant Food Company, Streator, Ill.                                      |
| Dixco                | 15-30-15 | Marion Chemical Co., Marion, Ohio                                       |
| Miracle-Gro          | 15-30-15 | Stern's Nurseries, 404 William, Geneva, N.Y.                            |
| Hy-Gro               | 13-26-13 | McCormick and Co., 414 Light St., Baltimore 2, Md.                      |
| Very High Plant Food | 6-25-15  | Miller Chemical & Fertilizer Co., 2226 N. Howard St., Baltimore 18, Md. |
| Instant Vigoro       | 19-28-14 | Swift and Company, Union Stock Yards, Chicago 9, Ill.                   |
| Ferti-Liquid         | 10-20-10 | Clover Chemical Co., Box 10865, Pittsburgh 36, Pa.                      |

##### Group III—Equal Nitrogen, Phosphorus, and Potassium Analysis

|                           |          |  |
|---------------------------|----------|--|
| Folium                    | 20-20-20 | Monsanto Chemical Co., 1700 S. 2nd St., St. Louis 4, Mo. |
| Nurish                    | 20-20-20 | Naco Fertilizer Co., Findlay, Ohio.                      |
| Gro-Stuff                 | 20-20-20 | American Chemical Paint Co., Ambler, Pa.                 |
| Kap Co. #3                | 20-20-20 | Kelley Agricultural Products, McKeesport, Pa.            |
| Dupont Soluble Plant Food | 19-22-16 | E. I. du Pont de Nemours & Co., Wilmington 98, Del.      |
| Ra-Pid-Gro                | 23-21-17 | Ra-Pid-Gro Corporation, P.O. Box 13, Dansville, N.Y.     |

tent of N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O, highly concentrated fertilizers generally cost more than twice as much as regular fertilizers. On plant beds or in greenhouse crop production their low salt value per unit of nutrient content frequently offsets their cost. In special cases where phosphorus deficiency is suspected in the field, they may be more effectively used in correcting this trouble than regular fertilizers that contain lower

eggplant during early spring. Medium high phosphate fertilizers are most effective for melon and cucumber plants and in transplanting cabbage and cauliflower. Those with more nearly equal N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O content are general-purpose mixtures for use in applying fertilizer through irrigation, for sidedressing outdoor crops, and in greenhouse crop production.

THE END

# The NEW LOOK in Hotbeds and Cold Frames

Lightweight materials and laborsaving ideas will help you make year-round use of your frames

By

J. R. KAMP and G. M. FOSLER

University of Illinois

NEW materials have not revolutionized hotbed construction in most nurseries and greenhouse ranges. Yet, with a little ingenuity we can greatly expand our effective growing area to good advantage using some of these newer products. Moreover, new ideas in construction and operation can also greatly increase efficiency and reduce costs. Here are a few suggestions which may merit your attention.

The shortage of cypress and redwood lumber, and the ravages of termites and decay, have gradually forced many growers to use other types of construction. Concrete frames, while very permanent, are costly and not entirely satisfactory because they are colder than similar frames of wood. And they are just as dark. Concrete (or haydite) blocks provide better insulation than reinforced concrete, but are also costly.

If you are looking for a satisfactory non-wood material, transite offers a concrete substitute which is hard to beat, for it is easy to handle and highly durable. The flat sheets are better adapted for this purpose than the corrugated. Transite can be sawed to fit and bolted to a wooden or metal structure. Some of the framework can be eliminated if the sheets are anchored in concrete footings.

While transite has much to offer, we suggest trying flat plastic sheets instead. The fiberglass-reinforced polyester plastics (such as Corrolux and Alsynite) are probably best. Not only will this material be immune to termites and decay organisms, but it is also easy to handle. Furthermore, it lets in much needed light. This quality would be especially valuable on the south wall of a frame. It is here that the shadow of the wall often greatly reduces the effective growing space inside.

Plastic on the other walls would

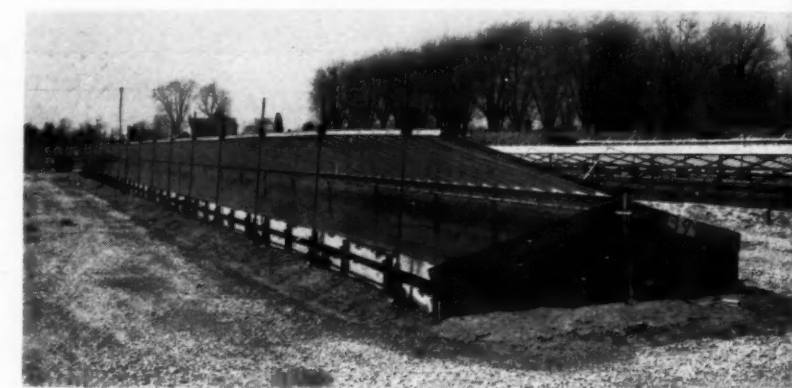


Figure 1 (above) — Water line extending length of frame, with booster pump, enables one man to ventilate, water, fertilize, spray.

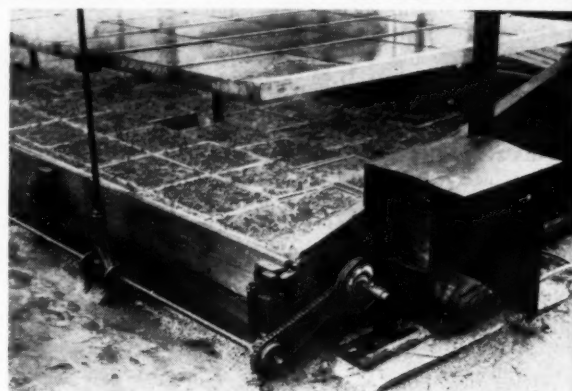


Figure 2 (right) — Worm-gear mechanism raises or lowers row of sashes at one time.

permit entrance of considerable indirect or reflected light. We are told that the polyester plastics transmit roughly 80 per cent of available light and have satisfactory heat transmission qualities and combustion points. At present, prices range from 75 cents to \$1.25 per square foot, but they promise to drop rapidly as production is stepped up.

A welded frame (e.g., made of old used steam pipe) covered with plastic sheets should last for many years. This same plastic material could also be fastened with screws to sash frames. Everyone knows how unwieldy conventional glass sashes are. Then why not remove the glass entirely and simply cover the wooden frame with a single sheet of plastic? If both the sides and top are of plastic, the entire hotbed or cold frame

will be both *light* and *lightweight* and will provide excellent space for growing or hardening off plants.

Nevertheless, we recommend using plastic on a limited scale until it has proved itself to you. Condensation and consequent drippage from the plastic-covered sashes could be a problem. The lightweight sashes would also have to be anchored down well to minimize wind damage.

The most promising ideas, however, are concerned with routine frame operations, and with making these frames useful over a greater part of the year. Let us first look at the operations phase.

**Ventilation**—Where large numbers of frames are in use, proper ventilation becomes a major item of expense. When sudden storms blow up, we cannot get the frames closed fast

enough to plants or the sun comes in, the process is needed.

The work in Figures 1 and 2 is revised by table plants sashes at operation, the man rapidly raises span. Thus tend a number kinds of work.

**Watering**—to be seen ridge is a entire length nozzles. Water pipe from By slowly the entire



Figure 4—By

uniformly Imagine do booster pump a fertilizer thus accom tions in a

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Figure 5— MARCH, 195



enough to prevent damage to some plants or the sash. Likewise, when the sun comes out suddenly, the uncovering process takes time and labor that is needed elsewhere.

The worm-gear mechanism, shown in Figures 1 and 2 and actually devised by a wholesale grower of vegetable plants, operates a whole row of sashes at once. At the push of a button, the motor pictured in Figure 2 rapidly raises or lowers a complete span. Thus, one man could adequately tend a number of such frames in all kinds of weather.

**Watering**—Another laborsaver is to be seen in Figure 1. Under the ridge is a water line extending the entire length and fitted with Skinner nozzles. Water enters one end of the pipe from a portable booster pump. By slowly rotating the Skinner line, the entire frame is adequately and

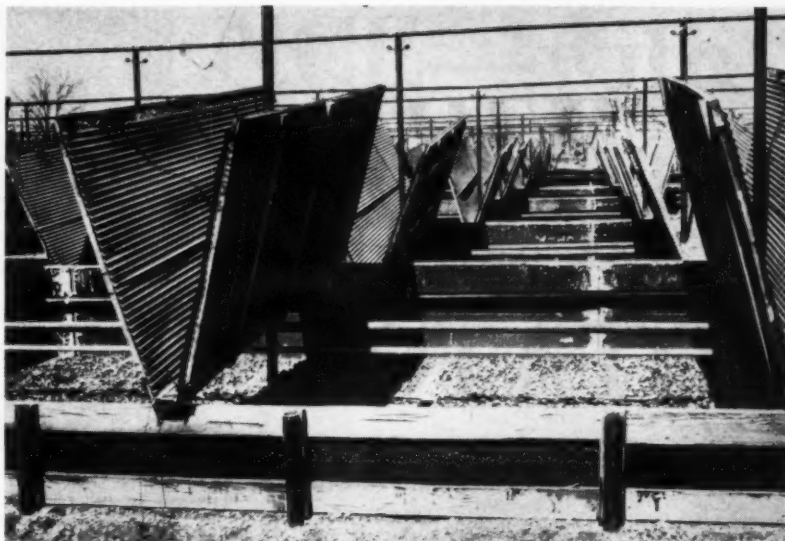


Figure 3—Novel method of hinging butterfly sash.



Figure 4—By means of a simple crank arrangement white canvas panel is quickly rolled or unrolled.

uniformly watered in several minutes. Imagine doing this job by hand! The booster pump may also be fitted with a fertilizer and insecticide injector—thus accomplishing two other operations in a most efficient manner.

By this method, many frames can be properly ventilated, watered, fertilized, and sprayed by a single man. The savings on labor alone should show the value of the mechanisms.

Add to this the production of better plants because you can afford to perform these operations when and as often as necessary.

**"Gang" Sashes**—The "butterfly sashes" in Figure 3 are covered with corrugated sheet metal, but plastic would be far more suitable. These were in use on frames in which vegetable plants were being hardened off. While this arrangement might not ap-

peal to many growers, the hinging of the sashes as shown might be an idea to consider. Wire cables extend from the sashes up to rotating pipes seen on top the vertical supports. By rotating a pipe manually (or with an electric motor), an entire gang of sashes can be efficiently operated.

Figure 4 illustrates a type of frame covering which has been employed by some growers for many years. Instead of expensive glass sashes and auxiliary equipment, a continuous panel of white canvas or muslin is used. A pipe fitted with a simple crank at one or both ends is used to quickly roll up or unroll the canvas. Also pictured is the novel idea of utilizing bent sections of 1¼-inch pipe at about 4-foot intervals as supports for the covering material.

It is suggested that heavy-grade clear vinyl plastic instead of canvas be used on this type of frame. This material is durable, transparent, and inexpensive. It is waterproof, and if torn, can be mended easily.

(Continued on page 32)

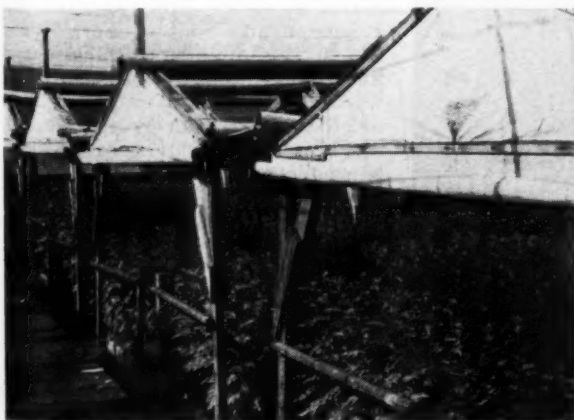


Figure 5—Dual-purpose frame, for use in spring and late fall.

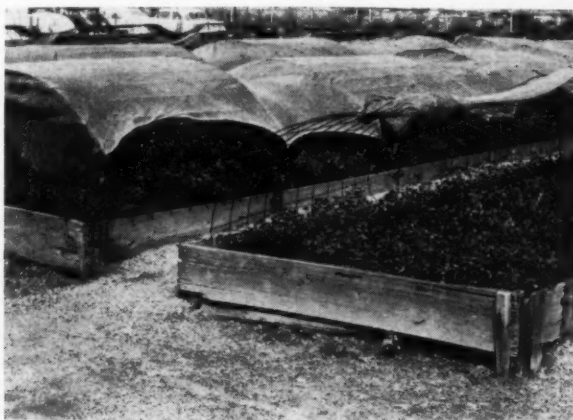


Figure 6—Woven wire serves to hold cloth, for necessary shading.

# WHY WASH POTATOES?

Clean, waxed potatoes have consumer appeal that's measured in dollars by the grower

By T. J. LOCKWOOD

**M**ORE revolutionary changes have taken place in the Irish potato industry in the past 15 years than in the preceding century. Among the major developments affecting both producer and consumer are the washing, waxing, and packaging of potatoes. These developments are the direct result of competition offered by other produce and fruits, consumer demand for smaller units of purchase, and high freight rates. Unwashed potatoes weigh more and as a result cost more to ship.

Since many of the large producing areas must of necessity ship their potatoes great distances, they have had to wash, grade, and ship only the highest grades, in order to attract consumers away from local unwashed potatoes. This is forcing the close-to-market growers to resort to washing.

A big problem now facing the in-

dustry is to work out a program for disposing of off-grade potatoes to starch and alcohol plants and for livestock feeding. This field has hardly been touched, but through co-operative effort we can expect much activity along this line. With it will come a stable potato industry.

European producers are just now starting to wash potatoes for human consumption. They, however, will not have to cope with a surplus problem because of their effective starch and stock-feeding program, which has been in operation for years. Germany feeds approximately half of her total production to stock, mostly hogs—and these potatoes are washed and cooked. About 30 per cent of Holland's potato production goes for stock feed and to starch plants.

An example of the radical change that washing accomplishes is the experience of the Herbert Campbell Company at Hastings, Nebr. In 1923,

when the firm was set up, potatoes were handled either in bulk or in uneven weights of approximately 12-pound bags. In those days, too, Nebraska potatoes were considered about the poorest quality potatoes on the market, bringing lowest prices.

In the fall of 1937 the company installed washers in their warehouses. The improved appearance of their washed red potatoes reversed their market position and they brought the highest prices on the market.

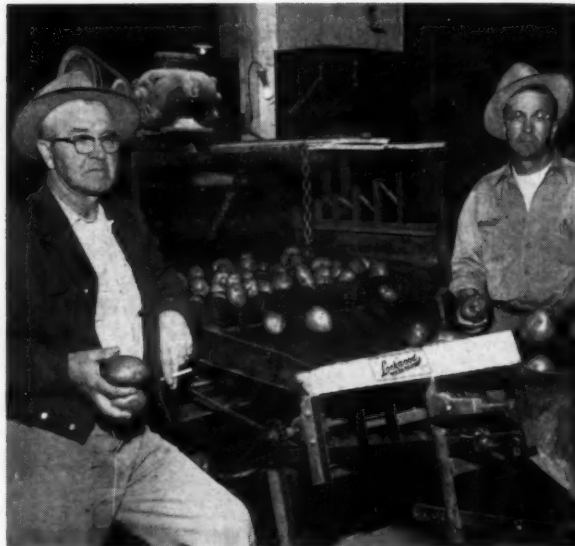
From the small 2-foot washer and small grader which cost about \$300, they now have a modern warehouse equipped for washing, drying, waxing, and grading. In addition, packaging equipment to handle consumer units of 10 and 25 pounds has been installed, together with automatic weighers, automatic staplers, sewing machines, and closures.

Some of the users of washers in the important potato state of Maine, in the fall and early winter of 1953, were Jacob Shur of Island Falls, Herschel Smith of Mars Hill, and T. E. Houghton and Sons of Fort Kent. The success of these washing activities resulted in the installation of washing equipment by a large number of other growers during the fall and early winter of 1954. One of the most outstanding and probably the largest installation, which also includes facilities for grading, sizing, and automatic packaging in consumer-size bags, is that of the F. H. Vahlsing Company of Easton.

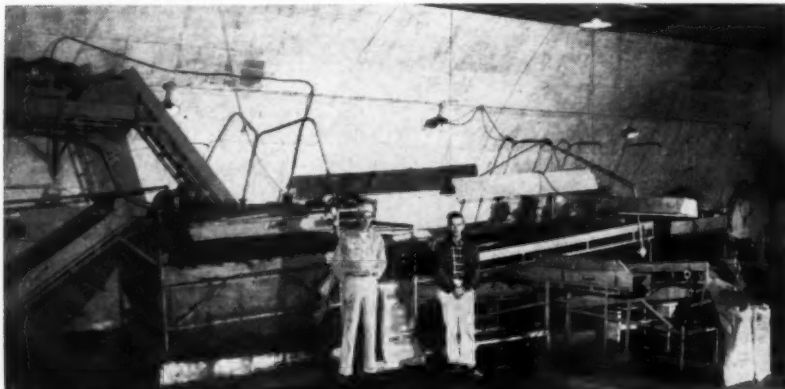
Out in Colorado, Clyde Helms, Sr., and Clyde, Jr., are noted for being good potato growers and packers. Both started in the potato deal some 20 years ago.

(Continued on page 37)

AMERICAN VEGETABLE GROWER



Clyde Helms, Sr. (left) and Clyde, Jr., successful Colorado grower, inspect some of their McClure potatoes as they come off the sizer directly behind their large 48-inch washer.



About 500 carloads of potatoes are washed yearly by the Mutchler Potato Company at Northwood, N.D. The Mutchlers not only wash the potatoes grown on their own farms but do custom work for other growers. Peak daily capacity of their plant is about 10 carloads. They use the flume system of conveying potatoes from storage bins to washing plant. James I. Mutchler, at right in above photo, says they contemplate a new storage with facilities for packaging in consumer-size bags.

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# INDEPENDENCE—with A GARDEN TRACTOR

**No more outside help is needed by these Massachusetts cucumber growers, now that they have a mechanical helper**

By BETTY BRINHART

**N**O other branch of truck gardening requires the diversity of operations to produce a good crop as does cucumber growing. From the moment they are planted until the season is over, cucumbers require constant attention.

In Massachusetts, which is known the country over for its fine vegetables and shade-grown tobacco, the average cucumber planting is two or three acres. The majority of these small growers must depend upon the large tobacco growers for their land preparation, planting, and cultivation.

If the tobacco plants were set out earlier in the season, this plan would work out fine. But, as it is, the two crops are planted simultaneously. The small cucumber grower must either have his field planted before the middle of May, and take his chance with late frost, or wait until tobacco planting is over and risk getting his cucumbers on the market too late.

Until last spring, we were compelled to depend upon this uncertain help. No matter how late the season, we had to wait patiently until the busy tobacco planter had a spare moment. Last spring, to counteract this inconvenience, we decided to purchase a 2½ h.p. David Bradley garden tractor, with essential equipment.

Because of a 14-inch stand of rye on the field, we had a neighbor turn it under and prepare the land for planting. We took over from there.

With a neat, compact planter, which fits behind the tractor, we planted and fertilized the entire two acres. While doing so, we discovered we were able to seed down 10 per cent more of the field. Since we were going to do all the cultivating with our small tractor, it was no longer necessary to leave the 8-foot stretch on both ends of the field for the larger tractor and cultivator to turn around. This meant more profit from a larger crop.

When the small plants reached two



Cultivating in 2½-week-old Massachusetts cucumber planting. Weekly cultivations last season kept the field clean of weeds and the cukes growing at their best.

inches, we began cultivating to air the soil about the roots, and to discourage weed growth. We straddled the rows, then went back and cultivated the 6-foot aisles. We found this work easy. The tractor was so light to handle that our 8-year-old son took it up and down the aisles several times.

Other seasons, when hired help was necessary, the weeds usually got a good start before the worker showed up. This meant hours of hoeing under the hot sun. And because the soil had not been sufficiently worked, the plants were never large and robust. Last season we made a practice of cultivating the entire field once a week. This kept the plants growing at their best, and the field clean of weeds.

When the many vines began creeping out into the aisles, we stopped cultivating and took an account of our expense. Including the spring plowing, seed, fertilizer, gas, and spray, it cost us exactly \$34.45. Other years, when outside help was used, our bill was well over \$65. The tractor was already paying for itself. We had the satisfaction of doing our own work, too, and of seeing the results in a good, healthy field of vines.

During cucumber picking time, the tractor, again, came in handy. The filled baskets were brought off the field in a small trailer pulled behind it. Before, the baskets had to be carried off by hand.

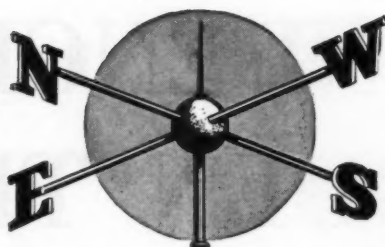
Even with the added expense of purchasing the tractor and its necessary equipment, we came out ahead on last year's crop. The field received constant attention which resulted in a bumper crop of cukes. The extra 10 per cent of the field that had never been planted before brought in more than its share.

We benefited in other ways, also, by purchasing this small garden tractor. Since the field was free of weeds, it was easier to pick, which meant more bushels could be picked in one day. This, in turn, meant more of the better-grade cucumbers went to market.

Our tractor has paid for itself in many ways during the past year, and will continue to do so as time goes on. This will mean more profit and less expense in raising our crops. Nothing else could be of greater aid to the small truck gardener than a garden tractor. I know, for certain, that we will never be without one again.

THE END





- Ohio Tomato Champions Grow New Hybrid Variety
- Penn State Urges Use of Cover Crops

## Tomato Champions

**OHIO**—The champion tomato growers in the Top Ten Tomato Club this year are A. G. Detwiler, Delta, and Herman and Wade Wolf, Toledo. Eugene Wittmeyer, Ohio State University extension horticulturist, announced.

Detwiler grew 27.3 tons of tomatoes per acre in the 3- to 15-acre class and the Wolfs grew 22 tons in the 15-acre and over class. The 1954 Ohio tomato crop averaged 12 tons per acre. While that's the highest average yield on record, it's still only about half what the champions grew, Wittmeyer pointed out.

Both growers used a new hybrid F-2 variety and both used starter fertilizer in transplant water. The Wolfs used Rutgers variety on part of their acreage.

Both growers used greenhouse plants. Detwiler set plants 3 feet apart in 6-foot rows on May 13, while the Wolfs set their plants 4 feet apart in 4-foot rows May 24-27.

Detwiler sprayed his crop 7 times to control diseases and included TDE insecticide to control tomato fruit worm. The Wolfs dusted 4 times early in the season and sprayed twice later. They added TEPP and TDE to control aphids and tomato fruit worm.

Detwiler plowed down 800 pounds of 0-20-20 fertilizer per acre and deep-dilled 800 pounds of 4-16-16 per acre after plowing. The Wolfs plowed down 600 pounds of 0-20-20 per acre, deep-dilled 800 pounds of 3-12-12, and side dressed the plants with 200 pounds of 3-12-12 per acre. Both growers had well-drained fields with sod crops in the rotation.

The top 10 per cent of tomato growers contracting with participating processors are members of the Top Ten Club. Membership this year is 130. The contest is

sponsored by the OSU Agricultural Extension Service, Ohio Cannery Association, and the Baltimore and Ohio Railroad.

## Potato Publicity

A \$100,000 promotional and educational program has been approved by the Long White Potato Advisory Board, to promote California Long Whites in every market in the U.S. during 1955, reports Arnold Kirschenmann, chairman of the board. This budget is about four times the \$25,000 established by the 1954 board.

## Use of Cover Crops Urged

**PENNSYLVANIA**—Greater use of cover crops in commercial vegetable fields was urged by Dr. John B. Washko, Penn State agronomist, in an address at the Pennsylvania Vegetable Growers' annual meeting.

Canning crops often occupy the land for relatively short periods of the growing season, and thus can be followed by cover crops. This will not only protect the soil but also improve it, Dr. Washko said.

He classed the two types of cover crops as those needed to provide ground cover and organic matter, such as ryegrass and rye, and those needed to accumulate both nitrogen and organic matter, such as hairy vetch and crimson clover.

For early vegetable crops, soybeans or sudan grass can be seeded and turned under as a green manure crop in September, when vetch or ryegrass can be seeded for winter cover and turned under the following spring. Sweet clover can be seeded with canning peas in the spring.

Beneficial results from use of such cover crops, said Washko, are: soil is protected from erosion; losses by leaching are minimized; structure and water-holding capacity of the soil are improved; nitrogen supply is increased if a legume is grown; or-



Janet Cutting (left), of Cleveland, will represent the Ohio vegetable industry during 1955, having recently received her crown from Ann Michael, of New Carlisle, who was queen in 1954.

ganic matter is supplied which releases nutrients on decomposition, and increased yield and quality of crops is obtained.

## Veg Association Changes Name

**MAINE**—The third annual meeting of the Maine Vegetable Growers Association was held during the Agricultural Trade Show at Lewiston on January 18. In order to become incorporated it was voted to change the name to Pine Tree Vegetable Growers Association. Officers for 1955 are: Frederick J. Witherly, Bangor, president; Harry E. Prout, Bowdoinham, vice-president; Robert W. Paulson, Orono, secretary-treasurer.

Hugh Tuttle, market gardener of Dover, N. H., in his talk on vegetable marketing, told about the Tuttle farm operations which go back 10 generations on the same farm.

Association plans for 1955 include Maine Vegetable Week to coincide with National Vegetable Week, also a vegetable queen program, the queen to be selected at the annual meeting next year.

W. Sherman Rowe, the "dean" of this state's county agents, has retired after 34 years of service to Cumberland County farmers. Fellow extension workers presented him with a slide projector at a recent conference of county agents.—Robert W. Paulson, Sec'y, Orono.

## Onion King

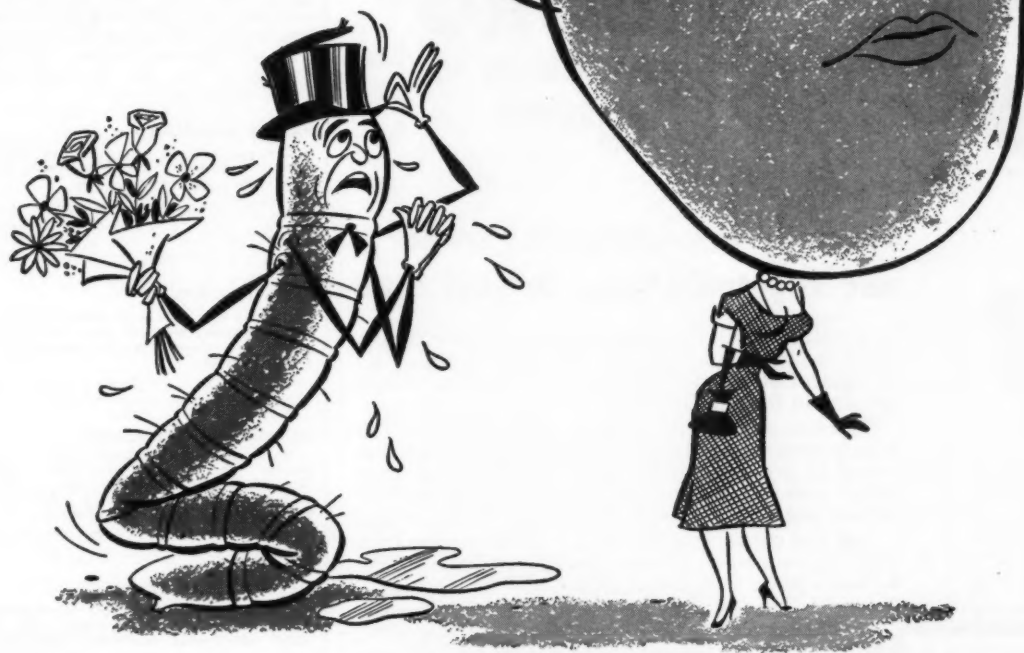
**MICHIGAN**—Kenneth Trapp, Beulah, received the title of "Onion King of Michigan" at the annual banquet of the Michigan Muck Farmers at Michigan State College during Farmers' Week, February 7-11. This is the fourth time Trapp has won the title.—Howard Trapp, Sec'y, Michigan Celery Promotion Assn., Beulah.

(Continued on page 33)



Ohio Vegetable and Potato Growers Association recently elected the following officers for 1955: Standing, from left: Norman Miller, Toledo, director; E. C. Wittmeyer, Columbus, secretary; Ferris Owen, Newark, director; Lee V. Gaffin, Columbus, treasurer. Sitting, from left: J. C. Basquin, Big Prairie, vice-president; Leonard Bettinger, Swanton, 1st vice-president; Clinton Seitz, Cincinnati, president; Vernon Kroushaar, Cleveland, vice-president; and Kenneth Zellers, Hartsville, vice-president.

# Quality potatoes don't go with wireworms



## Wise growers kill wireworms— with **aldrin**

Wireworms in potato soil are among the primary causes of potato downgrading. Aldrin gets them . . . it works fast and provides a whole season's protection with just one application. Aldrin does not affect the flavor nor leave a harmful residue when used according to recommendations. It is economical and easy to use as dust or spray in a broadcast treatment . . . or in a fertilizer mix. Get aldrin from your local dealer.

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When fancy quality and big yields on an early market mean the high dollar, be sure the plant food you use is Vigoro Commercial Grower—the cream of Swift's full line of farm plant foods!

This complete plant food is specially formulated to supply maximum nutrient requirements of high-value crops. It helps provide the balanced feeding that brings you size, quality, and even flavor in the harvested crop that demands top-of-the-market prices.

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Vigoro Commercial Grower is Chemically-Hitched—ingredients are fused together by an exclusive process developed in Swift's research laboratory. This assures uniform feeding of your crop, helping to raise the yield-standard of your farm.

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## Answering Your QUESTIONS

Don't let your questions go unanswered. Whether large or small, send them with a three-cent stamp for early reply to Questions Editor, AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

### POTATO TOP BEATER

I read in the October, 1954, issue of AMERICAN VEGETABLE GROWER of a potato top beater used in Alaska. I would like to know where I could obtain one of these, or plans for one.—Michigan.

Write C. Ivan Branton, Agricultural Experiment Station, Palmer, Alaska, for information on the potato top beater.

### PLASTIC FOR GREENHOUSES

What companies furnish plastic for covering greenhouses as described in the December, 1954, issue of AMERICAN VEGETABLE GROWER?—Massachusetts.

Polyethylene film for building a greenhouse can be obtained in large amounts from E. I. du Pont de Nemours & Company, Film Dept., 1007 Market St., Wilmington, Del.; The Visking Corporation, Plastics Div., Terre Haute, Ind.; or the Reynolds Metals Company, 3840 Georgia St., Gary, Ind. The Reynolds plastic is called Reynolon.

### RANGER BUSH-BEAN

Can you tell me where to buy seeds of the Ranger bush-bean, the All-America winner of some years ago?—New York.

Associated Seed Growers, Inc., 205 Church St., New Haven, Conn., released this variety a few years ago and probably is the only source of it.

### SPINACH HARVESTER

I would like to obtain information on a spinach harvesting machine, one that will clip just above the ground for the packaging trade.—Ont., Canada.

The Hume Equipment Co., Mendota, Ill., make the machine you want.

### SHIPPING PINK TOMATOES

With reference to Louis Rauth's shipping of Florida tomatoes "in the pink" (AMERICAN VEGETABLE GROWER, December, 1954), how high can the pink tomatoes be safely tiered without danger of crushing?—Missouri.

Mr. Rauth never packs more than one tier deep in a carton.

### HARVEST QUEEN MELON

Where can I get seed for the Harvest Queen melon pictured in the January issue of AMERICAN VEGETABLE GROWER?—Indiana.

Seed is available from the introducer of the Harvest Queen, the Joseph Harris Seed Co., 60 Moreton Farm, Rochester 11, N.Y.

### FILM BAGS FOR POTATOES

Is it practical to use film bags for potatoes?—Wisconsin.

Polyethylene film bags are becoming more and more popular among potato packers. An increasingly large percentage of potatoes are going to market washed and packed in bags. We are sending our reader tearsheets of a recent article in AMERICAN VEGETABLE GROWER on this subject.

### GLOBE ARTICHOKE

Where can I get seed for the globe artichoke pictured in the January issue of AMERICAN VEGETABLE GROWER?—Colorado.

Seed may be obtained from the following nurseries: Armstrong Nurseries, Ontario, Calif.; Stribling's Nurseries, Merced, Calif.

### GREENHOUSE PLANTING

I would like to have some information on greenhouse planting.—Connecticut.

Several articles on greenhouse planting are scheduled for coming issues of AMERICAN VEGETABLE GROWER.

AMERICAN VEGETABLE GROWER



# ACREAGE GUIDES

Reductions recommended for the summer and fall crops

**A**CREAGE-MARKETING guides for 1955-crop summer and fall vegetables for fresh use, summer melons, vegetables for processing, sweetpotatoes, and late potatoes were issued by the USDA on January 31.

Reductions of 1 per cent in total acreage for fresh summer vegetables, 1 per cent for fresh fall vegetables, 12 per cent for summer melons, and 1 per cent for vegetables for processing are recommended. The guide for sweetpotatoes is a planted acreage equal to that in 1954. The planted acreage guide for late potatoes is 5.5 per cent less than the acreage planted in 1954.

The 1955 guides for 16 fresh summer vegetables total 494,490 acres to be available for harvest, compared with 499,470 acres for harvest last year. For 15 fall vegetables the guides total 269,500 acres, compared with 271,600 in 1954. For the two summer melon crops the guides total 393,200 acres for harvest compared with 445,570 last year.

## No Change in Sweets

The guides for vegetables for processing and sweetpotatoes are on a planted acreage basis. For 9 vegetables for commercial processing the guides total 1,682,455 acres to be planted, compared with 1,699,130 acres planted in 1954; and for sweetpotatoes, 354,000 acres, which is equal to the acreage planted in 1954.

The late crop potato acreage guide, by states, amounts to a national total of 1,023,500 acres. The planted acreage last year was 1,083,400. With average yields, the probable production from the 1955 guide acreage would be 272 million bushels of potatoes—about 5 per cent less than in 1954. The supply, however, should be sufficient to meet requirements.

Guides for winter and spring vegetables were announced by the USDA last fall. The guides are issued seasonally prior to planting time and are designed to assist vegetable growers in planning production. A more detailed report on the 1955 summer and fall guides is available from your state extension service.

THE END

Are you planning a roadside market? Working drawings for an attractive, easy-to-build stand are available for \$1.00 from AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

# FASTER, BETTER, MORE ECONOMICAL CROP PROTECTION

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**John BEAN  
AIR SPRAYERS**



The new John Bean Air Crop Sprayer Attachment in action. Note the large area covered and even spray distribution.

Commercial growers have proven to themselves that air spraying the John Bean way gives them the fastest, most thorough and best timed coverage they've ever enjoyed. Not only do you get more effective crop protection, but you lower your spraying costs. You are able to use more concentrated spray solutions — and reduce labor by as much as 40%! Because of the speed with which spray can be applied, spraying schedules can be completed on the dot when you need them most. And no more problems of uneven terrain and unwieldy booms... an operator can spray any field — move the equipment anywhere — and seldom leave the tractor seat. Easy operation with convenient, simplified controls helps keep good help on the job.

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To Make HIS Crops Thrive  
in 1955

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*Insist on* **HALE**

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Address .....

Water Source..... No. Acres.....

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HALE Centrifugal Vegetable Sprayer sprays at any capacities and pressures, up to 100 G.P.M. at 600 lbs. at fast tractor speed. No relief valve necessary. The most versatile sprayer on the market.

Write for Bulletin #302. State Size of vegetable acreage.

SPRAYER DIVISION

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The HALE Centrifugal Vegetable Sprayer sprays with complete coverage, top and bottom, inside and outside. Nozzles adjustable for direction, volume and pattern.

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No. Acres.....

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CONSHOHOCKEN, PA.

## Florida's

# VEGETABLE NOMADS

Their wanderings seem destined to end, for crop rotation looks like the answer to their problems

By **WILLIAM G. MITCHELL**

Florida Agricultural Experiment Station

**I**F you had to clear new land for your vegetable operations each season, prepare this land and plant it even if it were 80 miles from your home, and often charge all expenses to a single crop, could you make a profit? This is the situation that has faced central and south Florida vegetable growers for many years.

To escape the many weed, insect, nematode, and disease problems they must combat, these growers have simply planted on virgin soil each season, often moving twice a year. Many growers drive 80 miles to their fields. To make matters worse, the supply of virgin land is running out.

### Vegetable-Pasture Rotation

But experiments now being conducted at the Indian River Field Laboratory and the Range Cattle Station of the Florida Agricultural Experiment Station may change all this. Norman G. Hayslip, one of the project leaders, says the scientists think the problem can be solved by rotating vegetables with improved pastures and perhaps corn and other grains.

While they don't have the final answer yet, three years of exploratory work has shown that tomatoes and Pangola grass can be used successfully in such a rotation program.

A Pangola-clover pasture seems to be more profitable than Pangola grass alone. This is because of the constant need for nitrogen on these sandy soils which are often drenched with heavy rain. In one clipping test, this sort of mixed pasture produced 6,650 pounds of dry forage in three clippings. Pangola alone produced only 875 pounds.

When Pangola was completely

turned under with a bottom plow in preparation for another crop of vegetables, it was easily and completely eradicated. In tests now being run, the workers are trying a method of soil preparation in which the land is not turned, but strips of sod are merely thrown together to make a bed and planted, leaving a strip of sod in the middle to re-establish the pasture after the vegetable crop is harvested.

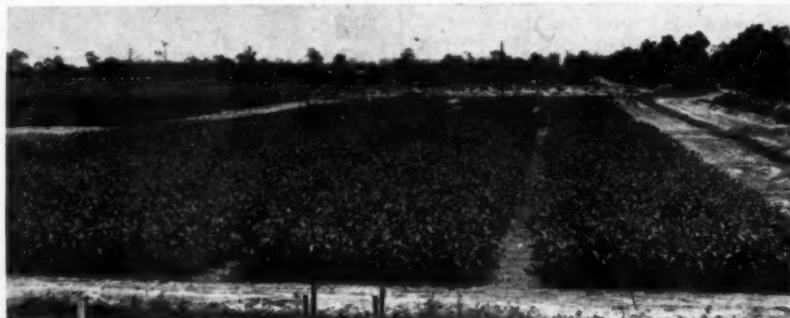
### Tomato-Corn Rotation

Since tomatoes and corn have no common diseases, the scientists believe that sweet corn would also be a good crop to use in rotation with tomatoes. Fall tomatoes leave residual fertilizer, and much of the expense of land preparation has been charged off to the tomato crop.

In exploratory tests excellent quality sweet corn has been grown on the experimental plots in this way, with yields of between 200 and 300 crates per acre. Two spring fertilizer trials with sweet corn following fall tomatoes have shown that 50 to 60 bushels of corn per acre can be grown, using only nitrogen on the corn. There is enough phosphorus and potash left from the tomatoes to make this yield.

A considerable amount of basic information is on hand, but the project leaders—Hayslip and Dr. E. M. Hodges and D. W. Jones of the Range Cattle Station—say that certain parts of the vegetable-pasture rotation need more study.

The Atlantic Land and Improvement Company and E. B. Hull, of LaBelle, are co-operating with the experiment station in a 112-acre rotation trial in the Devil's Garden area. This large-scale trial should help in proving whether or not the rotation plan is practical. **THE END**



Spring sweet corn planted after fall tomatoes in experiments at Florida's Indian River Field Laboratory produced excellent yields of high-quality corn. Improved pasture then follows the corn crop.

AMERICAN VEGETABLE GROWER

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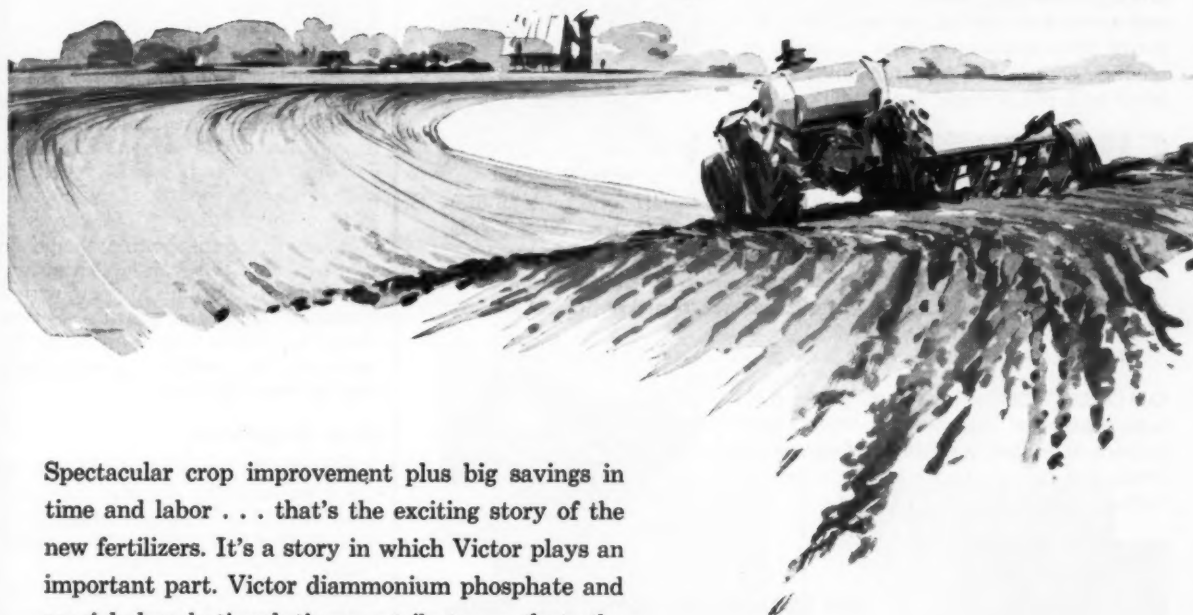
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## Victor Chemicals improve fertilizers ...



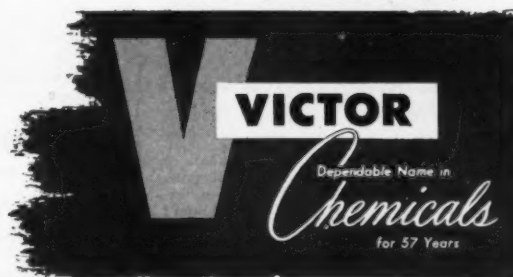
Spectacular crop improvement plus big savings in time and labor . . . that's the exciting story of the new fertilizers. It's a story in which Victor plays an important part. Victor diammonium phosphate and special phosphatic solutions contribute greatly to the amazing effectiveness of today's plant starters, high analysis and liquid fertilizers. Victor chemicals serve agriculture in many ways with phosphatic solutions for fertilizers, and phosphates for feed supplements.

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for transplanting all set-outs.  
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**ON CUCURBITS**—"Marlate" stops striped and spotted cucumber beetles *without* injuring these sensitive plants . . . even in seedling stages. It's tops for squash vine borer and pickleworm, too.



MEXICAN BEAN BEETLE

**ON COLE CROPS**—"Marlate" gives excellent control of flea beetles, worms and loopers. It is ideal for post-heading sprays because it can be used late in the season without presenting residue hazards.



FLEA BEETLE

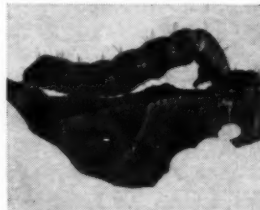
### For low-cost weed control in asparagus—Du Pont Karmex® W Herbicide

1 to 4 lbs. per acre of Karmex stops annual weeds and grasses for 6 weeks or more. It's an easy-to-use wettable powder, ready to mix with water. Spray before emergence and after harvest. Won't harm equipment. Consult local authority on dosages, timing.



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**ON BEANS**—"Marlate" gives outstanding residual control of Mexican bean beetle, leafhopper and bean leaf beetle. "Marlate" can be used up to a week before harvest without hazard to pickers or consumers.



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**ON ASPARAGUS, TOMATOES, POTATOES**—"Marlate" stops flea beetle on tender tomato transplants without injury; controls damaging asparagus beetle; has given almost 100% control of DDT-resistant Colorado potato beetle and other potato insects.

Killing efficiency, residual control and safety to plants and operator make Du Pont "Marlate" your best insecticide buy for these and other vegetable crops . . . see your dealer for "Marlate" today!

## Marlate® 50

Methoxychlor Insecticide



Better Things for Better Living . . . through Chemistry

The question is: "Should

## VEGETABLE TRANSPLANTS

be bare-root or container grown?"

By E. K. ALBAN

Ohio State University

**T**HE growing of vegetable plants in various forcing structures, for transplanting into the field, has been a standard commercial practice for many years. There exists, however, some difference of opinion on the relative value of the more expensive container-grown plant as compared with the bare-root plant. Actually, there is a minimum need for controversy on this subject if one analyzes his particular problem in the light of available information.

Vegetable plants are started in forcing structures or obtained from southern growers, so that a partially grown plant will be available to place in the field under favorable environmental conditions. Primarily this is done to assure an earlier harvest or to extend the harvest season of some of our vegetable crops which are grown under climatic conditions which tend to limit the outdoor growing season.

Plants for transplanting should be grown so that they can be placed into the field and continue to grow with a minimum check in growth. Severe checks in growth tend to minimize the value of the partially grown plant used in transplanting.

### Ideal Transplant

Ideally, the grower would like to use a well-grown, properly hardened plant that could be transplanted, with no root or top pruning, and continue to grow without any check.

Theoretically, a transplant that could be moved from the forcing structure with a ball of soil and roots intact would do better than a bare-root plant. In practice, however, this apparent advantage of the container-grown plant has not always proved to be of economic advantage as compared with the bare-root plant.

Celery, cabbage, cauliflower, and tomatoes for canning, are examples of crops where the more expensive container-grown plants do not appear to be warranted based on comparative returns with the use of bare-root transplants.

### Modern Containers

Unfortunately, many growers have allowed themselves to become convinced that container-grown trans-

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plants are too expensive for the commercial vegetable grower.

The development of composition and veneer bands, peat or composition pots, which can be taken directly from the forcing structure and transplanted into the field with standard equipment offers a real opportunity for the grower to produce earlier and better fresh-market tomatoes, peppers, and possibly other crops.

One more tomato or pepper from the better container-grown plant will more than pay for the slight increased cost in producing the plant. Our research results indicate that actually the first two or three clusters often yield more quality tomatoes with container-grown plants as compared with well-grown bare-root plants.

Production costs and gross returns vary considerably from area to area, so that it is not possible to predict



Container-grown plants more than pay for the increased cost of producing the plant.

that your area, or you as a grower, should use container-grown vegetable transplants.

### Try Some

If you produce plants for sale to the home gardener, you should very definitely begin to increase your use of these containers for your customers. If you are interested in the early market production of high quality vegetables, you should try some of these containers for your usual vegetable transplants.

Management practices, watering, soil mixture to use, supplemental fertilizer applications, and temperature to maintain will vary somewhat with each container. The kind of vegetable and the length of growing period will determine the size of container that you should use.

Warm-season crops such as tomato, pepper, eggplant, cucumber, muskmelon, and watermelon for the fresh market are more likely to warrant the added cost of container as compared with cool season crop transplants such as celery, cabbage, cauliflower, head lettuce, and broccoli.

THE END

MARCH, 1955

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160 Seeder  
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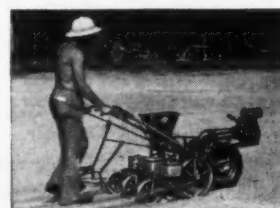
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# CONTROL DAMPING-OFF

Follow these 4 simple rules and  
you will produce vigorous seedlings

By **CHARLES CHUPP**  
Cornell University

**T**HERE are 4 rules in controlling damping-off, and none is complicated. Certainly the commercial grower cannot afford to neglect these or similar recommendations.

**Rule 1**—Treat all seed that requires it for specific diseases, or better still, buy the seed already treated. Cabbage and others of the cabbage family, as well as tomato seed, should be hot-water treated. Occasionally one reads that some seed-growing areas are free of disease and that hot-water treatment is not necessary. When the grower follows this wrong advice, he is almost sure to end up sooner or later by having black-rot take his cabbage, broccoli, and cauliflower crops.

There are at least 9 diseases of tomatoes partly or wholly controlled by the hot-water dip. Tomato, cab-

bage, and Brussels sprouts seeds are held in the hot water (122° F.) for 25 minutes.

All the other crucifers are treated only 20 minutes. Rarely carrot (15 minutes), eggplant (25 minutes), spinach (25 minutes), and celery (118° F. for 30 minutes) also are treated with hot water when advised by the local plant pathologist for some specific disease.

Cucumber, melon, squash, and pumpkin seeds are treated with corrosive sublimate, 1 ounce in 7.5 gallons or 1 tablet in each pint of water. The seeds must be washed thoroughly in running water after treatment. This chemical is a deadly poison when taken internally and should be handled with great care.

**Rule 2**—Dust the seed lightly just before planting with some fungicide to prevent seed-rot before germination and pre-emergence damping-off of the sprout. Commonly used dust

materials are Arasan, Semesan, captan, Phygon, and zinc oxide. Many others are on the market and can be used according to the directions of the county agricultural agent or state pathologist. Spergon generally is preferred on peas and is good also on lettuce and the seeds of the vine crops. Tersan may be preferred on onions.

**Rule 3**—Spray the young plants in the seed bed with ziram or captan, 2 pounds in 100 gallons or 1 ounce in 3 gallons of water. The spray should be a fine mist and should never be applied at a pressure greater than 250 pounds. It is necessary to spray both the soil and the plants. The applications are made at 5- to 7-day intervals, beginning as soon as the plants show above ground, and continued until ready to set into the field.

Tomatoes and celery can be sprayed alternately with one of the low-soluble coppers (not an oxide), 3 to 4 pounds in 100 gallons. It is not a good practice to use copper on the cabbage family, on muskmelon seedlings, or on peppers. There also is some indication that captan should not be applied to celery seedlings.

It may be well to treat the mem-

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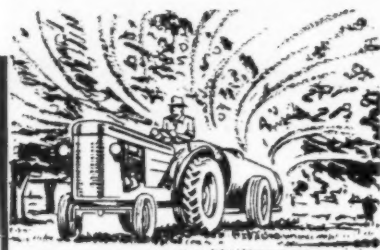
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One of the 4 rules in controlling damping-off is to use composted soil. Photo shows shredding and sifting soil from compost pile for greenhouse flats. Photo courtesy Dr. H. John Carew.

bers of the cabbage family with corrosive sublimate, 1 ounce in 15 gallons, or calomel, 1 ounce in 6 gallons, applied along the row but not on the plants. Two or three applications are required.

Sprays are of no value in cold frames or in cold greenhouses when the night temperatures are much below 57° F.

**Rule 4**—This rule, which really should come first, is the making of a compost pile. It may consist of only a few wheelbarrowsful of dirt and humus or be one containing hundreds of cubic yards. Enough soil, humus, fertilizer, and lime are put together to last 2 or 3 years. The pile is turned at the end of the first year, then is left for 1 or 2 more years before being used.

Large piles must be tested for soluble salts and acidity before the soil is shredded, sifted, and placed in flats. Long composting destroys weed seeds, destructive insects, and disease-producing organisms.

Soil sterilization and various drenches are not necessary if the above 4 simple rules are put into practice. One state grows nearly 120 million healthy tomato plants by the use of these simple methods or recommendations. THE END



Four million healthy tomato plants in one house. These were grown according to the 4 rules enumerated in article. Courtesy Dr. H. John Carew.

MARCH, 1955

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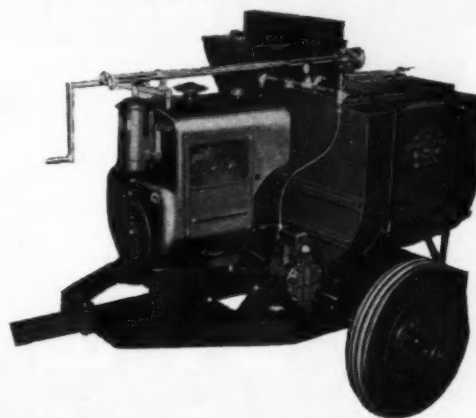
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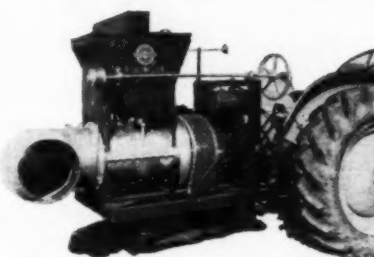


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## HYBRID SEED PRODUCTION

Pioneer producer tells of development of seeds and meaning of "hybrid vigor"

By H. B. PETO

Peto Seed Company, Ventura, Calif.

**H**YBRID vegetable seed production is relatively new in America and quite recent in Ventura County, California.

Ventura County is a desirable location for this type of production mainly because of its optimum climatic conditions. The first hybrid vegetable crops were produced in this county in 1944 and the author started in wholesale production of hybrid seed in 1950.

The term "hybrid" refers to the first generation ( $F_1$ ) cross between two parents with the resulting phenomenon of increased vigor called "hybrid vigor."

### Early Development

The first real use of the commercial hybridization was in corn in 1907 at the Connecticut Agricultural Experiment Station. Such men as Jones, Hayes, Ritchie, Jenkins, and others contributed notably to this new development which now takes in about 90 per cent of the field corn produced in the United States.

The first big users of hybrid vegetable seeds were the home gardeners through the catalog houses. Then the large market growers started using hybrids and the demand has increased each year. The hybrids that are produced in Ventura County at present are tomato, cucumber, watermelon, onion, eggplant, squash, and spinach. New hybrid classes are being added each year.

Hybrid tomatoes are being used by the large grower-shippers for green



Dr. Peto takes notes on hybrid cucumbers.

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shipping and also for ripe pack for local markets. A limited quantity is being used by the canning trade. Most of the hybrid tomatoes are earlier than the standard varieties and give high yields of smoother fruit. Other desirable characteristics are added wherever possible, such as disease resistance, freedom from cracking, reduced blossom drop, etc.

Actual increases in yields in such classes as hybrid tomatoes are as follows: Michigan and Tennessee, 96 per cent increase in yield over the standard varieties and Rhode Island, 52 per cent. Pennsylvania has reported 10 to 39 per cent more fruit harvested per acre.

In 1951 one hybrid cucumber won a bronze medal. This hybrid was called Early Surecrop, and in 1952 this same cucumber won the All America Award. This hybrid cucumber has a wide range of adaptability and its fine qualities coupled with disease resistance make it very outstanding.

#### New Seed Each Year

In selling F<sub>1</sub> seed to growers, they should be warned not to harvest the seed from the crop for use the following year because of the segregation that will show up the following year. Growers should obtain new F<sub>1</sub> seed from the same source each year in order to keep the high quality desired. The pollination in hybrid tomato production is quite laborious, as the work is done by hand. Workers have to remove the male parts of the bloom and introduce pollen later from the foreign parent.

In some classes such as the hybrid onion, a method of hybridization was worked out by the USDA making it possible to grow hybrid onion seed by planting the two parents in alternate rows in the ratio of 3 to 1 in the field. Insects then do the pollinating. Only seed from the female rows is harvested, the seed from the male rows being discarded. In the production of the hybrid onion three lines are required. The A and B lines are grown in cages to produce what is known as the male sterile. In field production the male sterile or females lines are interplanted with a third or C line for the production of the hybrid onion seed.

In hybrid tomato seed production great progress has been made in the introduction of male sterile lines. The type of sterility reduces the amount of work necessary in the hybridization of the tomato and in turn reduces the cost of production of the hybrid seed.

THE END

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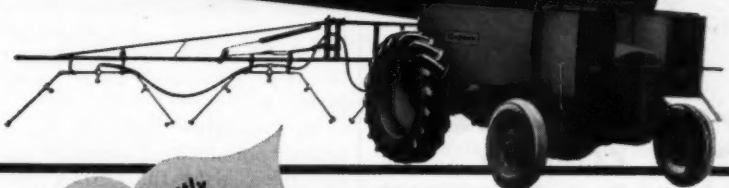


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## HYBRID ONION TRIALS Are HOT News in the North

By C. E. PETERSON

Michigan State College

**T**HOSE who have participated in the development and testing of hybrid onions are convinced that the new hybrids will revolutionize the onion variety picture in the North. This view is shared by many farmers and seedsmen who have observed the hybrid onion trials or studied the results.

Certain hybrids will yield 15 to 25 per cent more than open pollinated varieties of comparable storage quality. This is important but it is only one of the advantages of hybrids. Characters such as storage quality, earliness, greater uniformity of shape and color, tight scales, and freedom from grade defects may be more important than increased yield.

In December, 1953, twelve new hybrid onions were officially named and released by the USDA and co-operating state experiment stations. At the same time, foundation seed of the inbred lines used in these hybrids was offered to seedsmen. Some of the outstanding vegetable seed producers in the country are busy increasing these foundation stocks so that the expected strong demand for seed of the new hybrids can be met as soon as possible.

By 1956 growers will be able to buy limited amounts for trial and by 1957 seed should be available in quantities sufficient to meet demand.

### 30 Years of Research

Many years of painstaking effort have been devoted to the development of hybrid onions. In 1925 Dr. Henry A. Jones discovered a pollen-sterile plant in an inbred line of Italian Red onions growing in breeding plots at Davis, Calif. The ancestry of every pollen-sterile onion line used today in producing hybrid seed can be traced back to that single plant discovered 30 years ago.

Most of the early work was done by Dr. Jones and his associates in the USDA. During the past 10 years plant breeders at several state experiment stations, particularly Idaho, Iowa, Wisconsin, New York, Texas, and Colorado have been breeding and testing hybrid onions. Important contributions have been made by seed companies. Sufficient experience in hybrid seed production



Abundance, a high-yielding F<sub>1</sub> hybrid for limited storage, shown above, is well adapted to areas where Early Yellow Globe is grown.

has now been gained to insure sources of good seed at reasonable cost.

During the past four years hybrids have been tested in from 10 to 30 or more trials in such widely scattered locations as New York, Michigan, Wisconsin, Indiana, Iowa, Colorado, and Idaho. These trials gave extensive yield and storage data which were valuable in deciding which hybrids should be named and released.

### Qualities Compared

It is impossible to develop one hybrid that will suit all locations and all needs. A hybrid such as **Early Harvest** should not be stored because it will not hold up for long periods or stand rough handling and deep piling in bulk storages. This extremely early, mild hybrid is intended for the early market before other northern varieties mature. From direct seeding it will mature almost as early as set-onions in many locations. **Abundance**, a very high yielding hybrid, will stand a short storage period but because it is not a hard onion it cannot be subjected to rough handling and deep piling.

**Champion**, **Encore**, and **Contender** are intermediate in storage life and hardness. **Elite**, **Bonanza**, **Epoch**, **Aristocrat**, and **Surprise** are relatively hard and suitable for long storage. **Fiesta** is especially well adapted to the Sweet Spanish areas

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of the West. Pioneer has performed well in the Mountain Danvers area of Colorado's western slope. It is intended for production in that area and if grown in other places it should be done on a trial basis.

#### Individual Trials

Growers, seedsmen, and dealers should become familiar with these new hybrids before seed is generally available. Before converting important portions of his acreage to any hybrid, a grower should have a small-scale trial of his own, following recommendations of his state experiment station. In most onion producing states experimental data are available on local performance of hybrid onions over a period of years. This source of information should be utilized by growers in deciding which hybrid to plant. The season of 1955 and 1956 will see further extensive experimental trials and small quantities of some hybrids will be sold to growers for trial.

The fact that an onion is a hybrid does not guarantee that it will be

#### HYBRID ONIONS RELEASED IN DECEMBER, 1953.

| Name          | Sponsors of releases            |
|---------------|---------------------------------|
| Abundance     | Iowa, USDA, and Idaho           |
| Aristocrat    | USDA, Ohio, Idaho, and Iowa     |
| Bonanza       | USDA, Idaho, and Iowa           |
| Champion      | USDA, New York, Iowa, and Idaho |
| Contender     | USDA, Iowa, and Idaho           |
| Early Harvest | USDA                            |
| Elite         | USDA, Indiana, Iowa, and Idaho  |
| Encore        | USDA, Iowa, and Idaho           |
| Epoch         | USDA, Idaho, and Iowa           |
| Fiesta        | Idaho, USDA, and Iowa           |
| Pioneer       | USDA, Colorado, and Idaho       |
| Surprise      | USDA, Idaho, and Iowa           |

superior to the standard open-pollinated varieties. While the highest-yielding, best-keeping, and most attractive onions in trials have been hybrids, some of the poorest have also been hybrids. There are good hybrids and poor hybrids for a given area just as there are good and poor varieties.

The great improvement of the new hybrids over present standard varieties justifies the extra effort and cost of producing seed. The swing to hybrids will be rapid when their value and special qualities are understood. On the basis of the data and experience now available we can expect to see the familiar history of hybrid corn repeated in hybrid onions.

THE END

One of the keys to success in hiring good intelligent workers and holding them from year to year is attractive, comfortable housing. Send \$1 for working drawings showing construction details of 3-Room Tenant House to AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

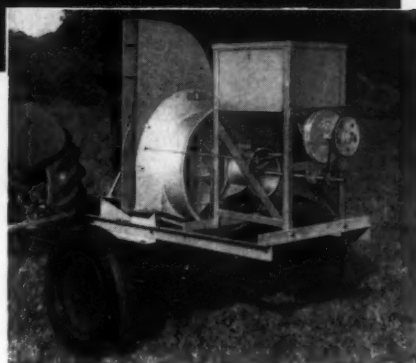


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## STOP DAMPING-OFF with **SUNOX** CONTROLS ALL RHIZOCTONIA-CAUSED PLANT DISEASES SAFELY, EFFECTIVELY

2 to 3¢ treats up to 600 seedlings



At last vegetable growers and propagators can prevent heavy losses from Root Rot and Damping-Off, the sudden wilting of seedlings. The disease is caused by *Rhizoctonia solani*, a dangerous fungus which, once present, quickly spreads through the soil.

The damage has been severe in seed beds and cutting benches, particularly in crops grown under glass, but almost all green and woody plants are subject to the disease, according to researchers at one of the East's leading Experiment Stations.

**Sunox**, college tested and field proven over a period of years, has been found highly effective in the prevention and cure of *Rhizoctonia*-caused diseases. "It has given uniformly high results, often as much as 100% protection with a single application," reported plant pathologists at one of the nation's foremost universities.

Growers and propagators the country over are using **Sunox** with remarkable success, and **Sunox** preventive treatment costs so little that many are using it now as a standard procedure. 2-3¢ treats up to 600 seedlings.

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CHEMICAL COMPANY  
LODI, NEW JERSEY

Write today for interesting literature telling of **Sunox's** remarkable control, and if your dealer does not have **Sunox** order through us and send us your dealer's name. Do it now!

## THE NEW LOOK

(Continued from page 15)

Sheet vinyl plastic, available in several widths and in almost any lengths, might also be kept in mind as something to quickly unroll over cold frames during cold snaps. It offers tight protection and is much more convenient to use than mats or straw.

### Dual-Purpose Frame

Where a dual-purpose frame is desired (one allowing the hardening off of young plants in spring and the growing of crops even beyond frost in the fall), a structure such as shown in Figure 5 might be practical. Here the wooden supports are permanent, and might even be replaced by pipe supports. Vinyl plastic or Sisalkraft sheets form the covering and are rolled down from the peaked roof as well as on the ends and sides.

This type of structure, while perhaps not the best from the standpoint of the specialized grower of vegetable and spring bedding plants, would find a place in many establishments. As shown, the identical setup is used later in the season for a fine crop of shaded off-season mums.

### Year-round Frames

Considering your investment, it is highly desirable to find a use for your frames all through the year—not just during the early spring months. Frequently they can be used during the summer for growing various crops and pot plants, especially if some shade can be supplied cheaply. Lath shading is effective but expensive. Heavy-grade woven wire fencing can be arched over the frame, as illustrated in Figure 6. When covered with coarse netting or camouflage cloth, we have ideal shade without trapping in heat. On dark days the cloth can be rolled up as shown in the foreground bed. It is easily held in place with ordinary spring clothespins.

THE END



Now at long last you can have that greenhouse you've been wanting. For \$250 you can build an 18x84-foot plastic greenhouse which would cost you \$4,000 if constructed of glass. Send 25 cents in coin or stamps to **AMERICAN FRUIT GROWER**, Willoughby, Ohio, for working drawings prepared by the University of Kentucky, together with descriptive leaflet.

AMERICAN VEGETABLE GROWER

## CALL MEET

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MARCH, 1



## CALENDAR OF COMING MEETINGS AND EXHIBITS

**Mar. 10**—North Jersey Fruit Growers meeting, sponsored by extension service and New Jersey State Horticultural Society, Far Hills Inn, Somerville.—E. G. Christ, Sec'y, New Brunswick.

**Mar. 9-10**—Iowa Fruit and Vegetable School, Council Bluffs.—Glenn Raines, Sec'y, IFGA, State House, Des Moines.

**Mar. 21-22**—Kern County Potato Growers Association 11th annual convention, Bakersfield Inn, Bakersfield, Calif.—Francis P. Pusateri, Exec. Sec'y, Bakersfield.

**Apr. 5**—Market Garden meeting during Farm and Home Week, University of Maine, Orono.

**Aug. 16-20**—Centennial of Farm Mechanization, Michigan State College, East Lansing.—A. W. Farrell, Head Agr'l Engng. Dept., MSC, East Lansing.

**Oct. 4-6**—Florida Fruit & Vegetable Association annual convention, Hotel Fontainebleau, Miami Beach.—Geo. Talbott, 29 S. Covit St., Orlando.

**Nov. 1-3**—Florida State Horticultural Society 67th annual meeting, Fort Harrison Hotel, Clearwater.—Ernest L. Spencer, Sec'y, Bradenton.

## STATE NEWS

(Continued from page 18)

### Prevent Potato "Hollow Heart"

**LOUISIANA**—Hollow heart in Irish potatoes can be prevented by closer spacing when planting, John A. Cox, LSU extension horticulturist, says.

Hollow heart is a large open space in the potato with an occasional brownish corky tissue surrounding it. Large potatoes will be affected more seriously than smaller ones. It is a result of rapid growth and is sometimes caused by use of too much nitrogen as fertilizer. It may also occur when temperatures, rainfall, or other conditions are ideal for rapid growth. Since it is not a disease, it has no effect on the following crop.

Hollow heart can be prevented by closer spacing of the plants in the row. On good rich land, 8 to 10-inch spacing, instead of the usual 12 to 14 inches, is recommended. This will prevent such rapid growth, even on soils high in nitrogen.

### Cherokee in Trademark Family

The Cherokee potato has joined the family of varieties which may be shipped under Maine's official Blue, White and Red State Trademark. The Maine Department of Agriculture's Division of Markets states.

The six other varieties eligible—one variety to a package—are Katahdin, Green Mountain, Kennebec, Teton, Russett Burbank and Conso.

Of 2,550 carloads of Maine potatoes shipped during the last six weeks of last year, 695 carloads were of washed potatoes. Of approximately 1,750 truckloads during the same period, 240 were washed.

Potatoes under the official state trademark accounted for about 10 per cent of the washed shipments, a division spokesman said.

### Cold Weather

**FLORIDA**—Temperatures during January averaged several degrees below normal in the vegetable-producing areas. Slightly below freezing to near freezing temperatures, with light to heavy frosts extending into the Everglades occurred during the middle and latter parts of the month. Rather extensive damage was done to tender vegetables as far south as the Everglades.—George M. Talbott, Florida Fruit & Vegetable Assn., Orlando.

### Cut Sweet Corn Bacterial Wilt

**DELAWARE**—Sweet corn growers can solve many of their problems with bac- (Continued on page 34)

# RA-PID-GRO



RA-PID-GRO will be receiving credit for years for the wonderful Plant Food it is. There is no other Plant Food made like RA-PID-GRO. It is a secret formula.

RA-PID-GRO is 22 years old—no complaints—two million customers—better fruit—more of them which will mature—trees healthier.

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Buy the Plant Food recommended by nurserymen, top agricultural and horticultural experts—more than two million customers.

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**First with** — Shaft seal under suction, virtually ending seal failures in the field.

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**First with** — Overall operational safety — each unit has adequate protectional controls.

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**First with** — Long-life check valve, with positive lever control on large models.

**First** — among sprinkler irrigation pumps — complete package units: pumps, engine, exhaust priming device, strainer — ready to work. . . Write for bulletins.

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To Spray On Growing Plants  
Feeds plants quickly through  
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**FARM IMPLEMENT SPECIALTY SALES CO.**  
Dept. 4, 22516 Hoover Rd. VAN DYKE, MICH.

## STATE NEWS

(Continued from page 33)

terial wilt by ordering sweet corn seed from late-maturing varieties. These seeds produce plants that are more tolerant of bacterial wilt than the early maturing varieties.

Drs. H. E. Milliron and J. W. Heuberger of the University of Delaware's departments of entomology and plant pathology warn sweet corn growers that adults of the common corn flea beetle harbor the wilt bacteria and infect corn plants on which they feed.

During mild winters sufficient numbers of these beetles survive to cause heavy infection of corn in the spring. Infected seed can also introduce the disease into a field.

The migration of beetles from infected to non-infected areas is responsible for considerable spreading of the disease during the growing season. In areas where wilt is serious, a certain percentage of the infected plants become stunted and die before reaching 6 to 8 inches in height.

Other plants continue to grow, but develop broad, light streaks parallel to the midrib of the leaf, which often shrivels. Such plants that do survive the attack ordinarily produce ears that are small and of poor quality.

The late-maturing and more tolerant varieties recommended are: Lochief, Huron, Golden Security, Code 199, Golden Standard or Normandie Improved. Two desirable, though not entirely resistant, mid-season varieties are Carmelcross and Barbecue. Avoid the early-maturing, highly susceptible varieties.

### New Tomato

Seeds of a new tomato, Homestead No. 2, are being released to seedsmen by the Florida Agricultural Experiment Station at Homestead and the USDA. For two years at the Sub-Tropical Experiment Station, Homestead, and in commercial fields, it has attracted widespread attention of growers.

Developed in co-operation with the Southeastern Vegetable Breeding Laboratory, Charleston, Homestead No. 2 has the same near immunity to fusarium wilt as the Homestead, is uniformly semi-determinate, and produces more nearly globe-shaped fruit. Productivity and size are believed to equal that of Homestead, which was released in 1952.

Homestead has proven highly popular in southern Florida, even though it has considerable variability in plant type.—Francis Cooper, Editor, Agr'l Exp. Sta., Gainesville.

### New Officers

**MARYLAND**—At their annual winter meeting the Maryland Vegetable Growers' Association elected the following officers: Theodore Schmick, Hurlock, president; John Foard, Hyde, vice-president; A. A. Duncan, College Park, secretary-treasurer; Francis C. Stark, College Park, assistant secretary. Serving as directors are St. Clair E. Hess, Fallston; C. Preston Smith, Salisbury, and Richard Streett, Forest Hill.

Officers of the newly-formed Maryland Bird Control Committee are Bill Bradley, Salisbury, chairman, and Gene Stedman, Easton, secretary.

With the acreage of fall spinach somewhat lower in competing areas, Maryland growers enjoyed a steady market for their usually superior greens. Quality was excellent, but yield was a little low because the spinach was on the small side when it was cut.—A. A. Duncan, Sec'y, College Park.

### Fiesta Tailor-made

**IDAHO**—The new hybrid onion, Fiesta, has won hearty approval from this state's growers and seedsmen. Tailor-made for Idaho, it is outstanding as a longer storage onion highly suitable for dehydrating.

D. F. Franklin, superintendent of the University of Idaho's Parma station where

Fiesta was there is li accepted, eastern O

Unfortun Fiesta ava very little be enough ments.

### Sweet Pot

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### Sweetpotatoes

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### Treatment

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MARCH, 1957

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Fiesta was developed, commented, "I think there is little doubt that the variety will be accepted, at least in southern Idaho and eastern Oregon.

Unfortunately, there is no more seed of Fiesta available for planting this year, and very little for next year, 1956. There should be enough seed in 1957 to satisfy requirements.

#### Sweet Potato Grower Honored

**NEW JERSEY**—Louis J. Sanguinetti, sweet potato grower of Minotola, was one of three farm leaders honored by the State Board of Agriculture at its 40th annual convention recently. He is a past president of the New Jersey State Horticultural Society, and of the State Board of Agriculture.

He was recognized for his work in the advancement of the sweetpotato industry. Since the 1930's he has specialized in the growing of sweetpotatoes and has been active in developing new varieties and marketing methods. Just now he is chairman of the New Jersey Sweet Potato Industry Committee.

"You have made the revival and advancement of the sweet potato industry your cause," the citation stated . . . You generously contributed your farmstead as the laboratory for hundreds of trials and demonstrations . . . Thanks to your faith and foresight New Jersey already holds first rank in proficient production."—Ernest G. Christ, *Ext. Veg. Crops Spec., New Brunswick.*

#### Sweetpotatopanic

Personally, we're confused. After calling them sweet potatoes for many years, we learned that the USDA was calling them sweetpotatoes. So we started calling them sweetpotatoes, only to find that many people (including our wise old dictionary writer) were still calling them sweet potatoes. Now probably there's not much difference between a sweet potato and a sweetpotato; the merest whisper of a space divides them. But we wonder how soon it will be before sweetpotatopia, sweetpickierellish, and sweetcornonthecob appear on the market?—*State News Editor.*

#### Sweetpotato Seed

**SOUTH CAROLINA**—Sweetpotato growers are advised to plant only certified seed carrying the inspection tag of the South Carolina Crop Pest Commission. This is the best way to stop fusarium wilt, or stem rot, a disease which is spreading throughout the state, Hugh A. Bowers, Clemson extension truck specialist, says. The disease, which results from the planting of infected seed, kills young plants or, if the plants survive, stunts their growth, thereby reducing yield of U.S. No. 1 sweetpotatoes.

"When soils have become infected with wilt or stem rot," Bowers said, "it is well not to use them for the production of sweetpotatoes for a period of probably eight to ten years, as it is still undetermined just how long the soils will remain infected."

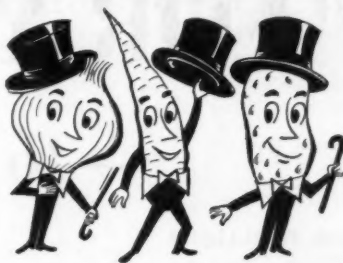
#### Treatment for Pre-peeled Potatoes

**NEW YORK**—A new method of commercially treating pre-peeled potatoes which extends their life in cold storage and nearly eliminates after-cooking darkening, has proved promising in recent experiments at Cornell University.

Smith Greig, a graduate student in vegetable crops, has found that when a chemical called EDTA is added to sodium bisulfite and applied to potatoes after peeling, storage life is extended up to 30 per cent and after-cooking darkening is greatly reduced.

While EDTA is colorless, tasteless, odorless, and non-toxic, Greig said that prospective users should check with the Food and Drug Administration.

MARCH, 1955



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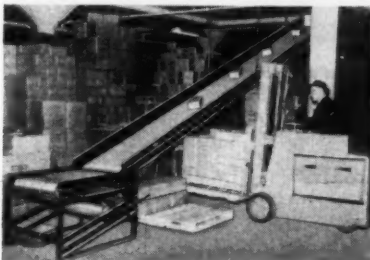
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Many of our readers are using the new all-purpose liquid fertilizer. Ferti-Liquid contains all the nutrients needed for high profit, extra fancy vegetables. Primarily used for seed treating, and as a foliage spray for growing vegetables, it more than pays for itself in increased production. It is easy to use, cheap, will mix quickly with almost all chemicals, and can be applied while spraying. Write Bill Hallewell, Clover Chemical Co., P.O. Box 10865, Pittsburgh, Pa., for the facts.



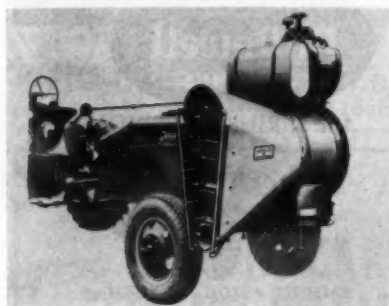
### Accurate, Fast Bagger Solves Weighty Problems

One of the largest potato growers has installed a new bagger which has increased his production and curtailed costs. The machine incorporates many new ideas which all growers have long wanted. An automatic device keeps a uniform supply of potatoes at the foot of the elevator. The elevator is 24 inches wide and each sack hanger is 12 inches wide. Thus, two bags are filled at once without jamming or wedging. The sacks are filled while they are moving, and each flight of the elevator is so designed as to deliver 10 pounds of potatoes at a time. The entire unit can be

handled by two persons—one to control the master and individual switches, and the other to check the weight of the bags as they are filled. I suggest you write D. B. Baker, Baker Machinery Co., P.O. Box 455, Kennewick, Wash.



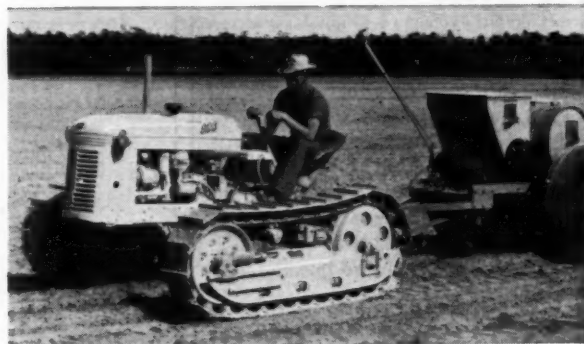
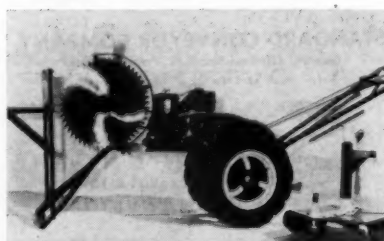
### High Quality High Profit Vegetables through Proper Spraying



### Forward and Reverse Power

The garden tractor at right—S. L. Allen's new '55 model—is the first garden tractor we know of which includes a reverse gear as standard equipment. Powered with the famous Briggs and Stratton engine, it does every job with ease and a minimum of effort on the part of the operator. All of the famous S. L. Allen implements, including the precision seeder, will fit the new tractor. Write S. L. Allen & Co., Inc., 3419 N. 5th St., Philadelphia 40, Pa.

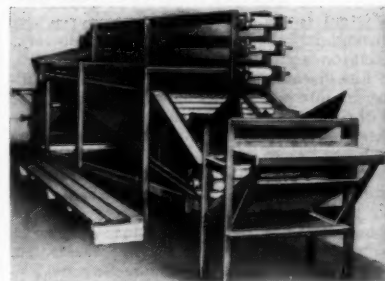
Growers are giving more attention to proper spraying procedures to insure high quality and increased profits. The first step is a sprayer of adequate capacity and pressure—a rig which will stand up with a minimum of maintenance. The new Aircrop (left), quickly converts your present boom sprayer into a modern high efficiency machine. It completely covers several rows at a time, and is built with John Bean's regard for sound engineering. For full information, write Art Gerard, John Bean Division, Box 840, Lansing 4, Mich.



### Crawlers Mean Profit

Many growers have found the crawler-type tractors to be the profitable solution for vegetable production. The Oliver crawler (above) is not dependent on weather or terrain. This practical tractor will help you operate on a time schedule basis. No need to wait for dry fields. The crawler operates equally well in the wettest weather and because of its continuous power tread, hillside plantings are no problem. One of the best crawlers for vegetable growing is the Oliver "OC-3." This famous crawler can go to work for you. Write Bob Dinnsen, Oliver Corp., 400 W. Madison St., Chicago 6, Ill., for your free booklet on it.

### Increase Tomato Profits



Smart tomato growers are grading their crop for color and size. Many are using the new White grader (above), which carefully rotates the tomatoes as they proceed along the line. In this way the over-all color of each tomato is easily observed. Growers and packers report reduction in manpower of 50 per cent and increased production amounting to 100 per cent. Write Scott Saunders, R. G. White Manufacturing Corp., 101 97th Ave., Ozone Park 16, N. Y., for the details on this remarkable machine.

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MARCH, 195

## OPPORTUNITY ADS

Only 25c a word for one-time insertion; 20c a word for two-time insertion; 15c a word for four-time insertion—CASH WITH ORDER. Count each initial and whole number as one word. ADDRESS AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

### FOR SALE—EQUIPMENT AND SUPPLIES

**SOLVE YOUR VEGETABLE SPRAYING** problems with one of our rebuilt and guaranteed John Bean high-pressure sprayers. We have 400- and 500-gallon tank outfits with 35-gallon pumps, both motor driven and power take-off. Wheel spacing and clearance will be converted to suit your needs. Attractively priced. **MILLBURG GROWERS EXCHANGE**, Benton Harbor, Michigan, southwestern Michigan's oldest and largest Bean dealer.

**POTATO EQUIPMENT, COMPLETE LINE.** 4-row Iron Age planter, 12-row Bean sprayer, Deere 2-row level bed digger, Noffsinger harvester, 2 complete Lockwood graders, conveyors, bin fillers, seed cutters, self-unloading wagons, EHG Cletrac 68" with four-row cultivator, 4-row cultivator for OC-6 Oliver Crawler, Bean Roto-Beater, many other items. All in good shape. For full particulars, write or phone, **MERLE HORSWELL**, Williams, Iowa, Phone 3117.

**NEW IRON AGE TRANSPLANTER, ONE-** row, with fertilizer attachment. Bargain. **GIESZELMANN IRRIGATION EQUIPMENT**, Collinsville, Illinois.

**HARDIE 35 G.P.M. 500 GAL. TANK TRAC-** tor trailer. Used 3 years. Also Bean Royal 20 G.P.M. 300 gal. tank and trucks. **WM. A. PACKER**, Adena, Ohio.

**1—1953 MODEL 29-L SPEED SPRAYER;** 1—Bean Speedaire; 1—Aqua-Jet Blower; 1—Bes-Blo; 1—Niagara Duster; a quantity of new wire-lined 2" Suction Hose, 14 ft. lengths with 2" pipe fittings. Bargain. 1—Niagara Grader; 1—Myers PTO Sprayer. **CORY ORCHARDS**, Cory, Indiana.

**35 G.P.M., 400 TANK, HARDIE SPRAYER,** engine powered trailer. **WELDAY'S ORCHARD**, Smithfield, Ohio.

### MEDICAL

**LATEST METHODS TREATING FILES, FIS-** tula, Colon-Stomach disorders. Write for free book. **MCCLEARY CLINIC AND HOSPITAL**, E145, Excelsior Springs, Mo.

### MISCELLANEOUS

**BLACK RASPBERRY PLANTS, CERTIFIED,** disease free Raspberry plants. Cumberland, Morrison and Bristol plants available at wholesale and retail prices. Contact the **OWEN POTATO FARM**, Newark, Ohio.

**MORE AND MORE VEGETABLE GROWERS** are enjoying winter farming in Palm Beach County, center of winter production. Farms in the path of suburban development soon grow into high price building lots. Contact **E. H. BORCHARDT**, Boynton Beach, Fla.

**NATIONALLY ADVERTISED REBUILT** Vacuum Cleaners. \$39.95 FOB Youngstown, Ohio. World famous models with a complete set of attachments: 1. Rug Nozzle, 2. Floor Brush, 3. Upholstery Tool, 4. Crevice Tool, 5. Dusting Brush. Including completely rebuilt motor with new parts. Also hose, dust bag, filter, 20' cord. Satisfaction guaranteed or your money back. Order yours today. Write **BOX 103, AMERICAN VEGETABLE GROWER**, Willoughby, Ohio.

## SEEDLESS WATERMELON

Be first to grow amazing seedless melon pictured in Life Magazine. Originator's technique developed hybrid-dellious sweet bears 5-7 seedless table-size melons per vine. We furnish 20 seeds for plants, plus pollinators, heating cable, soil treatment, planting hands, instruction handbook for starting, transplanting, growing. Complete kit \$3.95, check or M.O. No C.O.D. Handbook and 20 seeds only \$2.95. Order from this ad.

**AMERICAN SEEDLESS WATERMELON SEED CORP.** Dept. G, R.R. 1, Goshen, Ind.

**STRAWBERRY PLANTS, POSTPAID \$2.60—** 100, \$17.00—1,000. Write for varieties. **AUDRITSH'S NURSERY**, 912 Franklin St., Fremont, Ohio.

**PEAFOWL, SWANS, PHEASANTS,** Guineas, Bantams, Waterfowl. Thirty varieties Pigeons. **JOHN HASS**, Bettendorf, Iowa.

### VEGETABLE PLANTS

**SEND NO MONEY—CERTIFIED FROST-** proof Cabbage and Onion Plants. All varieties. Pay Postman. 200 plants \$1.00, 500 plants \$2.00, 1000 plants \$2.50, 2000 plants \$4.00. Plus Postage. Our new 1955 Calendar-Catalog free with each order. Order now. **P. D. FULWOOD COMPANY**, Dept. 100, Tifton, Georgia.

**CERTIFIED TOMATO, CABBAGE, PEPPER** and Onion Plants. All leading varieties. Grown under complete disease control. Satisfaction guaranteed. Write for free pamphlet. **JOHN THORNHILL PLANT CO.**, Tifton, Georgia.

**MARCH, 1955**

## WHY WASH POTATOES?

(Continued from page 16)

The Helms used the dry pack for about 16 years, then the demand became insistent for washed potatoes. Realizing that the washed potato was here to stay, the Helms built a warehouse on their own farm. In 1950 they installed a potato washer. This machine consists of a 32-inch elevator, one 36-inch sizer to take the seed potatoes out before washing, one 48-inch roller-type washer with jet sprays, one 12-foot double roller picking table. As the demand increased, a spool sizer was put in the line to handle the sizing of the clean potatoes for packaging.

Later the demand was for waxed potatoes. A Lockwood dripper-type waxer was installed. Their shipments of consumer-size packages have increased until at present approximately 35 to 40 per cent of their total shipments are in 10-pound bags. Their automatic bagger had to be equipped to handle any type of bag, for their 10-pound shipments today run approximately 40 per cent mesh, 20 per cent paper, and 40 per cent polyethylene bags, with the latter increasing in popularity yearly.

In 1954 shipments from this grower-warehouse, all by truck, totaled 1,250 carloads. The Helms employ 50 people for nine months of the year.

THE END

## YEAR-ROUND MARKET

(Continued from page 11)

squash during a season. Varieties grown are Blue Hubbard, acorn, butternut, and turban. These are stored in an insulated squash house which is kept at 45° with bottled gas heat. If the temperature drops, thermostat-controlled electric heaters go on automatically. Sales of this crop are continuous throughout the fall and winter.

One big money-making crop directly connected with the greenhouse and hotbeds is tomatoes. Some years Lievens has ripe tomatoes to sell in November. Tomatoes are started inside in 6 x 6-foot flats and transplanted to the fields. Before the killing frosts in late September, all the green tomatoes are picked for the relish manufacturers with the exception of 100 bushels or so that are kept to ripen in the greenhouse. These are shipped to top markets at a time when tomatoes are scarce and high-priced.

It's surprising how well a greenhouse will work in with an established farm program. Edward Lievens finds it pays off and helps keep customers buying Holly Hill Farm vegetables throughout the year.

THE END

## HAND TRANSPLANTER

That Sets, Waters and Covers Plants in One Operation

Here's a tool for both the large and small operator.

The large grower uses it for filling in skips or where plants have failed to take hold.

A small grower will make his entire planting with the Lynchburg Automatic Transplanter.



This transplanter will handle tomato, cabbage, sweet potato, pepper, egg plant, cauliflower, strawberry, tobacco plants and all other slip plants.

The Lynchburg Transplanter is ruggedly constructed and is guaranteed for one year against faulty workmanship or defective materials.

Order direct or through your nearest supply dealer. Let us send you our descriptive folder.

Reasonably Priced

**LYNCHBURG PLANTER MFG. CO.**

LYNCHBURG, VIRGINIA

## Are You A Seed Salesman?

Add to your income by selling **AMERICAN VEGETABLE GROWER**. It's a logical combination for **AMERICAN VEGETABLE GROWER** will help your customers get the best results from the seed you sell them. *Make every call pay!* This means additional cash for you regardless of whether you sell a seed order or a subscription to **AMERICAN VEGETABLE GROWER**.

Write today for our liberal, nursery

agents' plan. Address:

**EDWARD MEISTER**, General Manager

**AMERICAN VEGETABLE GROWER**

Willoughby, Ohio

## VEGETABLE PLANTS

Cabbage, Onions, Tomatoes, Pepper, Collards, Broccoli, Brussels Sprouts, Cauliflower, Eggplants, and Sweet Potatoes.

Best strains of leading varieties. Shipments catering to market gardeners' demands. Free price list.

**TEXAS PLANT FARMS**

JACKSONVILLE, TEXAS

## The Science of Varieties

WHEN you choose a particular variety, you select the one that will grow the strongest, produce most abundantly, and will net you the most money. The one you grow may not be the best for your neighbor, nor will it necessarily be the same one you grew a decade ago. Times change, and so do vegetable varieties. Each variety is selected according to how well it responds to a given set of environmental conditions and according to how good it tastes. When we change a factor in the environment or when peoples' tastes change we must change to another variety that will fit into the new set of conditions.

Now we go a step further than this. Our plant breeders and our seedsmen have a great many new varieties ready to fit anybody's taste or to be grown in almost any place in the country. They even have thousands of varieties on the waiting list ready to take the place of some old variety which can no longer stand up under modern growing conditions and dietary habits. The variety is truly the

foundation stone of our American vegetable industry. Without the great amount of work being done by our plant breeders and the seed trade to produce and distribute new varieties, the progress of our vegetable industry would be slowed enormously.

A vast amount of knowledge has been accumulated, but even that is minute in comparison to what we shall learn about varieties in the years to come. The "science of varieties" is maturing into a precise and exact one, posing some exciting challenges for the geneticists of tomorrow, as well as of today. We can't hope, ever, to know all there is to know about varieties. Neither can we say that plant breeders are wasting their time and our money just because they don't introduce a host of new varieties each year. Science doesn't work that way. There necessarily must be a great mass of work done in the laboratory and in the field, and then only a select and limited list of new creations offered for trial in the growers' own fields.

in the green plant. They add one more piece to the puzzle. Other scientists are fitting in other pieces, newly discovered compounds, new chemical processes going on within the plant.

What is making possible the current progress in solving the photosynthesis process? Among the many scientific accomplishments, one stands out as particularly important—the use of radioactive elements. The California team has been working with radioactive carbon and radioactive phosphorus. By watching what happens to atoms of these elements as they go through the photosynthesis process, the scientists were able to make their discoveries. Since this sort of investigation is in continuous process, we perhaps can soon expect the final answer as to how photosynthesis accomplishes its task in nature.

Once the answer is found, what then? It could mean that agriculture no longer would be a vital industry, because foods could be manufactured as other products are today. Whatever the outcome, the effects upon agriculture will be tremendous. Foods then should be plentiful upon the earth, since we could manufacture them at will.

Industries other than agriculture would be affected too. It would be possible to locate factories in the tropics or in desert areas and power them by sunshine. Civilization might find itself on the move, as it would no longer be necessary to have populations centered in areas of coal, oil, and water power. We would be living in a different era from ours of today.

These are some of the thoughts being expressed by those studying our scientific progress. They are not saying *if* that day comes, but *when* it comes. Apparently scientists are aware of their own power and understanding.

## Side-Stepping Nature

SCIENCE is about to unlock the final secret of how a green leaf captures energy and transforms it into the food of the earth.

The process in nature whereby green plants combine carbon dioxide and water in the presence of sunlight to form sugars is known as photosynthesis. As yet, no laboratory process has been devised which can duplicate nature's life-giving photosynthesis. Consequently, man has from the beginning been totally dependent upon this function of nature for all his food and a great portion of his industrial energy. Photosynthesis is the basis of all agriculture too. Our green vegetables, along with all other green plants, are the food factories of the world. You might say they are where life begins.

Now, we are hearing a different story as news comes to us from the research laboratories of industries and universities. Just recently research workers at the University of California discovered two of the first

compounds formed during photosynthesis. These are building blocks in the formation of starches and sugars

### VEGETABLE CONVENTION



"... And again I say to you cucumbers and melons—Down with aphids and spider mites!"

### Coming Next Month

Vegetable Pest Control Issue

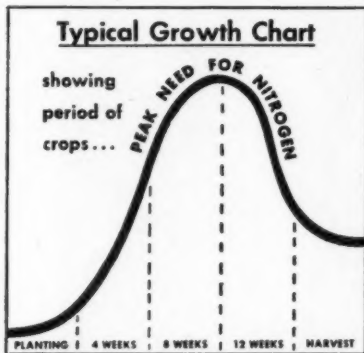
- Easier Insect Control with New Materials
- Concentrates Cut Spraying Costs
- A Resume of Disease Control in 1954
- Progress Report on Use of Antibiotics for Vegetable Diseases

AMERICAN VEGETABLE GROWER



6 reasons why

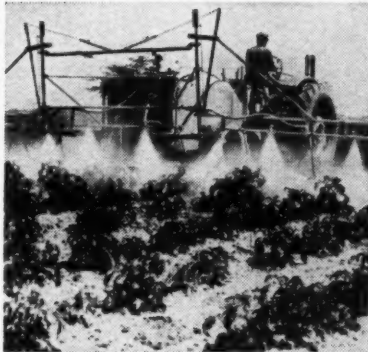
# Du Pont **NUGREEN**<sup>®</sup> is your Fertilizer Compound best buy in supplemental nitrogen



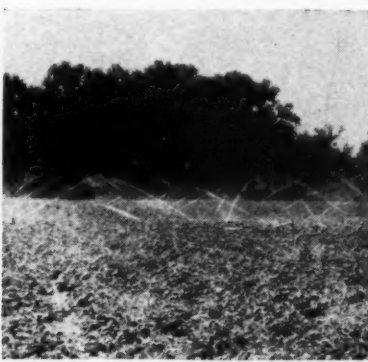
**1. "NuGreen" feeds crops** when they need it most. Different crops have peak nitrogen requirements at different stages of growth. You can apply "NuGreen" to meet your crop needs.



**4. "NuGreen" helps turn** crop residues and cover crops to plant food ... quickly. "NuGreen" becomes ammonium nitrogen in the soil ... helps decay organic matter, creates top nutrient levels, better soil structure.



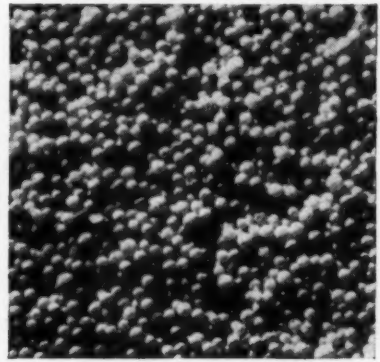
**2. "NuGreen" works fast** because it can feed nitrogen through the leaves. Combine it with pesticide sprays to eliminate separate nitrogen applications. Won't corrode your equipment.



**5. "NuGreen" can be applied** in any irrigation system. This efficient method saves time, labor. "NuGreen" reaches crop roots because it isn't fixed in the top few inches of soil, yet gives quick response.



**3. "NuGreen" is efficient** for side or top dressing. Practically every pound of "NuGreen" becomes plant food. That's because it resists leaching, is held in the soil until crops need it.



**6. "NuGreen" is concentrated** 45% nitrogen in shot form. Save labor by handling less material per unit nitrogen applied, whether by foliage spray, air application or side dressing.

Examples on this page illustrate some of the many reasons why "NuGreen" is your best buy when your crops need more nitrogen than is included in your other fertilizer materials.

"NuGreen" is concentrated, free-flowing and readily soluble in water. It comes in 80-lb. bags. See your dealer for "NuGreen" today. Ask for free literature giving recommendations for various crops ... or write to us.

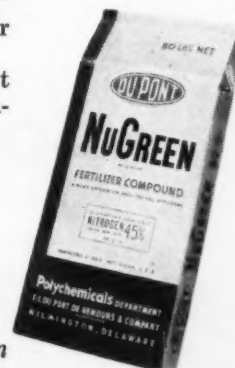
E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Dept., Wilmington, Delaware  
In Canada—Du Pont Company of Canada Limited, Box 660, Montreal.



BETTER THINGS FOR BETTER LIVING  
... THROUGH CHEMISTRY

## NUGREEN<sup>®</sup> Fertilizer Compound

Your best buy in supplemental nitrogen



*Looking for a high quality hybrid?*

**HERE IT IS**



**ASGROW GOLDEN 50**

**Season:** Main crop, maturing just after Golden Cross Bantam.

**Plants:** Medium height. Tolerant of drought and resistant to wilt. High yielding.

**Ears:** Borne about 21"; 7"-9" long, with 14-16 rows of kernels.

**Kernels:** Small and deep; pearly golden color. Superior quality holds well.

another



introduction

GET IT FROM YOUR DEALER, OR WRITE TO OUR NEAREST ADDRESS

**ASSOCIATED SEED GROWERS, Inc.**

*Breeders and growers of vegetable seeds since 1856*

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